

TriboServ

Original User Manual FlexxPump4 Battery



I. Revision history & imprint

I.I Revision history

The present user manual is the original user manual.

This user manual is only valid for

Product:

Product designation: FlexxPump4 Battery (FP4 B)

Product revision: ---

User manual:

date of creation: 01.2020

revision of the user manual: 0

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The content and technical specifications are subject to change without notice.

I.II Imprint of the manufacturer, distribution and service

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1. General information about this manual

This user manual contains all necessary information to use FlexxPump4 in the battery version, hereinafter referred to as FP4 B, safely and as intended. In the event that supplementary sheets are attached to these instructions, the information and data contained in the supplementary sheets are valid and replace the corresponding information in this user manual. Any contradictory information contained in this user manual thus becomes invalid.

If you have any questions regarding special applications, please contact TriboServ GmbH & Co. KG (chapter I.II).

The actual and factual operator must ensure and guarantee that these instructions, including any supplementary sheets, have been read and understood by all persons responsible for the installation, operation or maintenance of the FP4 B. Therefore, keep these instructions in a suitable place, ideally in an easily accessible place, in the surrounding area of the FP4 B.

Inform your colleagues who work in the local area of the machine about safety instructions so that nobody gets hurt.

This manual was written in German, all other language versions are translations of this manual.

1.1 Signal words

The following signal words are used in this manual to draw your attention to possible dangers, prohibitions and other important information:

DANGER

This signal word points you to an immediate and threatening risk of serious injury or death.

WARNING

This signal word indicates a potentially imminent danger which can result in serious injury or even death.

CAUTION

This signal word indicates a potentially imminent danger that can result in minor to severe injuries.

NOTICE

This signal word indicates a potentially imminent danger which can result in damage to property.

INFORMATION

This signal word refers to practical application tips or particularly important information when using the FP4 B.

1.2 Warning symbols

The following warning symbols are used in this user manual to alert you to hazards, prohibitions and important information:

		
General warning sign	Electricity hazard	Flammable material

1.3 Structure of the safety instructions

The safety instructions in this user manual are structured according to the following system:

	CAUTION The text explains the consequences of disregarding the reference. ▪ The text shows what to do as an instruction.
---	---

1.4 Symbols for information

The following information symbols are used in the text and instructions in this manual:

- Requests you to take action
- ➡ Shows the consequences of an action
- ❗ Additional information about the action

2. Safety

All persons working with the FP4 B must follow these operating instructions, in particular the safety instructions and the rules and regulations applicable at the place of use. Generally applicable legal regulations and other rules as well as the relevant rules and regulations for accident prevention (e.g. Personal Protective Equipment (PPE)) and environmental protection must be observed.

2.1 EC/EU Directive

Within the scope of the EC/EU Directive, (re)commissioning of a machine on which the FP4 B has been installed and/or fitted is prohibited until it has been clearly established that the machine complies with the provisions of the applicable Directive.

An EC/EU declaration of conformity for the FP4 B can be found in the appendix (chapter 9.2).

2.2 Hazards

In order to avoid danger to the user or damage to the machine on which the FP4 B is used, the FP4 B may only be used for its intended purpose (chapter 2.5) and in a technically safe condition.

Always inform yourself about the general safety instructions (chapter 2.7) before starting to work.

2.3 Staff

Only qualified staff who has read and understood this manual may work with the FP4 B. Local and/or company regulations apply accordingly.

2.4 Reasonably predictable misuse

Any use of the FP4 B which exceeds the maximum permissible technical data is generally considered to be improper and therefore prohibited.

2.5 Usage for the intended purpose

The following points must be observed for the intended purpose of using the FP4 B:

- + The FP4 B is exclusively approved for industrial use.
- + The FP4 B may be used exclusively in accordance with the technical data (chapter 3.4).
- + Unauthorized structural alterations to the FP4 B are not permitted.
- + Read the user manual and act accordingly.
- + During operation of the FP4 B, a visual inspection of the FP4 B as well as of the lubrication point must be carried out regularly. Any anomalies must be eliminated immediately and the cause rectified.
- + Refilling the cartridge is not permitted.
- + The FP4 B may not be opened or disassembled.
- + Only lubricants approved by the manufacturer may be used.
- + Relevant regulations and rules on work safety, accident prevention and environmental protection must be observed.
- + Work and activities with and on the FP4 B are only permitted with appropriate authorisation (chapter 2.3).

All other uses than the aforementioned intended usage or the disregard of one of the above points shall be deemed improper usage. In this case no liability and/or warranty is assumed.

2.6 Warranty and Liability

If the following items are disregarded, all warranty and liability claims for personal injury and/or damage to property are excluded:

- + Non-observance of the instructions for transport and storage;
- + misuse;
- + Improper or unperformed maintenance or repair work;
- + Improper assembly / disassembly or improper operation;
- + Operation of the FP4 B with defective protective devices and devices;
- + Operation of the FP4 B without lubricant;
- + Operation of the FP4 B with non-approved lubricant;
- + Operation of heavily contaminated FP4 B;
- + Modifications or alterations which may be carried out without the written permission of TriboServ GmbH & Co. KG have taken place;
- + Opening and/or partial or complete disassembly of the FP4 B.

2.7 General safety instructions

The following safety instructions are given for the FP4 B:

	DANGER Damaged or incorrect electrical connections or unauthorized live components lead to serious injuries or even death. ▪ Have all electrical connection work carried out by qualified personnel only. ▪ Replace damaged cables or plugs immediately.
	NOTICE Loose or overloaded screw connections can cause damage to the FP4 B. ▪ Mount and check all screw connections with the permissible torques specified for this purpose. Use a calibrated torque wrench.
	WARNING Lubricants are flammable. ▪ In case of fire, do not use a water jet to extinguish the fire. ▪ In case of fire, use only suitable extinguishing agents such as powder, foam and carbon dioxide. ▪ Observe the relevant safety instructions of the lubricant manufacturer on the safety data sheet of the lubricant used.
	CAUTION Lubricants can cause skin irritations. ▪ Avoid direct skin contact.
	NOTICE Lubricants can contaminate soil and water. ▪ Use and dispose lubricants properly.

3. Description of function

3.1 General information

The FP4 B is designed as an extremely compact double piston pump for autonomous operation with grease as the lubricant. The two pistons run force-controlled and counter-rotating. The FP4 B is available as a version with one lubricant outlet or as a version with two lubricant outlets. The outlets are secured by an integrated non-return valve. Approx. 0.16 cm³ of lubricant is pumped during each dispensing operation; multiple dispensers can be set one after the other.

The LCD on the front panel displays the various operating states; further information (empty cartridge, error) can be read.

The present FlexxPump4 as battery version has no electrical interface. The supplied activation and programming key can be used to adjust the quantity of lubricant pumped per time to supply the lubrication point with the ideal quantity of lubricant.

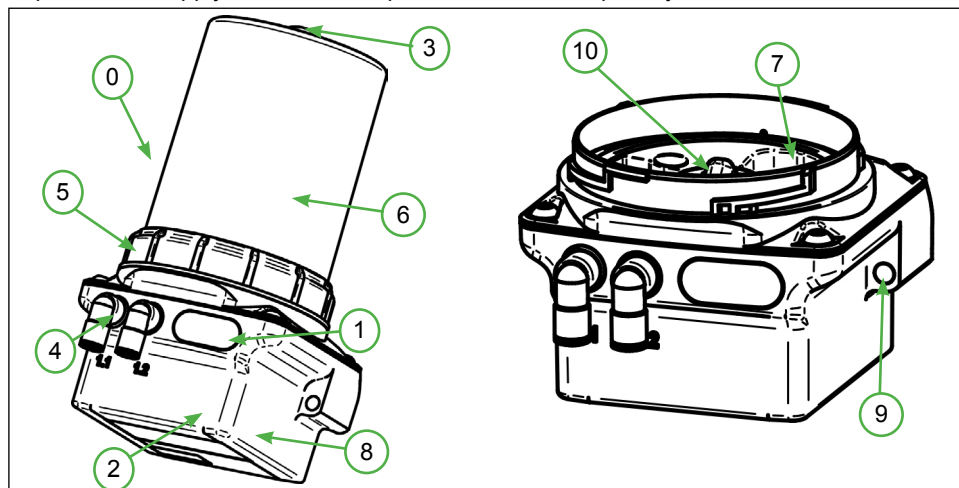


Fig. 1: Overview FP4 B

Nr.	Description
0	FlexxPump4 B (FP4 B)
1	LCD
2	Action area (for actions with the activation and programming key)
3	Activation and programming key
4	Lubricant outlet, outlets (different versions possible)
5	Retaining ring
6	Housing
7	Battery compartment
8	Nameplate with designation, CE mark and serial number
9	Through hole for assembly
10	Lubricant inlet with thread for cartridge

3.2 Nameplate and designation

The nameplate of the FP4 B is visibly attached to the side of the pump itself. There the CE mark and the serial number of the FP4 B are visible. Refer to chapter 3, Fig. 1 for the location of the nameplate and serial number.

3.3 Scope of delivery

The FP4 B is available in several different versions. They differ in the design (housing for 250ml cartridge or housing for 400ml cartridge), the number and type of lubricant outlets and the scope of accessories supplied.

3.4 Technical data

Housing			
Dimensions without cartridge	width x height x depth	107 x 56,5 x 108	mm
Dimensions with housing for 250ml cartridge		107 x 165 x 108	
Dimensions with housing for 400ml cartridge		107 x 200 x 108	
Weight (without cartridge)	appx.	1130	g
Mounting options		holes for screw M6	
Mounting position		upright	
Material		Zinc die-cast / PA 6.6 GF30 / POM	
Material outlet		Nickel-plated brass	
Operating temperature		-15 ... +60*	°C
Lubricant and hydraulics			
Cartridge volume		250 / 400	ml
Lubricant characteristics		grease until NLGI class 2	
Number of outlets		1 / 2	
Hydraulic connection		via PA-Tube	
Number of lubrication points		up to 8 in conjunction with aluminum progressive distributor**	
max. pressure		70 (-10%/+15%)	bar
Steady state pressure		50	bar
Grease delivery	per stroke	0,16 (-5%)	cm ³
Electrics			
Display		LCD	
Operating voltage		6	V
Protection class		IP 54	

* Only valid when using the Lithium battery. When the Alkaline battery is used, the permissible operating temperature for the FP4 B is +15°C ... +60°C is limited. Please note, however, that in individual cases the operating temperature may depend on other factors (e.g. lubricant).

** The stated value depends on the specific application and may vary considerably in individual cases depending on the lubricant used and other conditions.

4. Transport and storage

4.1 Packaging

The FP4 B is delivered in an outer packaging (cardboard box) and - depending on the scope of delivery with a lubricant cartridge and other accessories - in the same package. To protect them from moisture and dirt, they are also packed in PE films.

Dispose the packaging materials at the designated disposal points in compliance with the relevant national and company regulations.

After receiving the FP4 B, check the delivery note for completeness and correctness. Any missing parts or damage must be reported immediately to the forwarding agent, the insurance company or TriboServ GmbH & Co. KG in writing.

4.2 Transport

	NOTICE
	Hard shocks, e.g. due to falling or setting down too hard, can damage the FP4 B. ■ Do not throw the FP4 B. ■ When using lifting equipment, only use hoists and load handling attachments in perfect condition and with sufficient load capacity. ■ The permissible lifting weight of the lifting device must not be exceeded.

4.3 Storage

Store the FP4 B in its original packaging in a vertical position in a dry, frost-free environment at an ambient temperature of +5°C to +30°C. The maximum storage time in unopened condition is 2 years.

The so-called "First-In-First-Out-Principle" (FiFo) is recommended for storage logistics.

5. Mounting

5.1 Preparations

Before starting to work, inform yourself in detail about the FP4 B using this user manual; in particular about the general safety instructions (section 2.7). Prepare the installation site carefully.



NOTICE

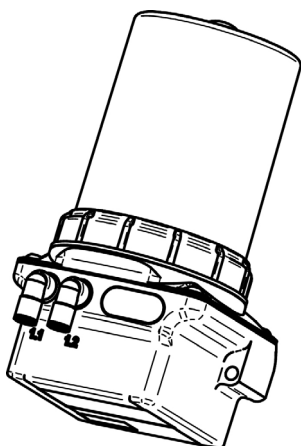
Pressurised air can damage the seals of the FP4 B and can transport dirt and foreign matter into the FP4 B or the lubricant.

- Do not use pressurised air.
- Make sure that there is no coarse dirt in the mounting area.

5.2 Assembly

1. Condition as delivered

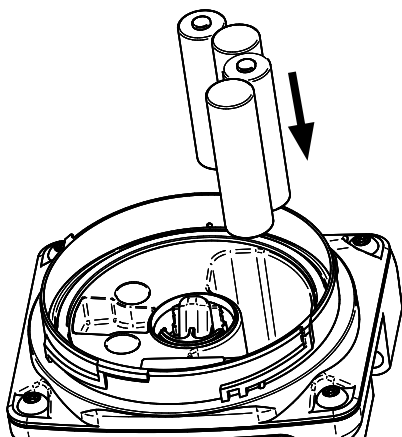
The FP4 B is delivered in a cardboard box. Depending on the version ordered, further accessories such as battery, lubricant cartridge or additional tube connection parts are included.



2. Remove the housing from the power unit of the FP4 B.

- Separate the housing from the power unit by turning the retaining ring counterclockwise.

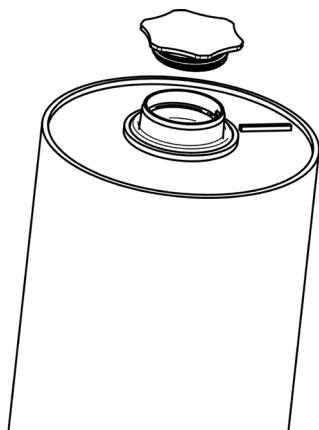
① Make sure that no dirt, water or foreign bodies enters the lubricant inlet.



3. Inserting the battery

- Extract the battery cable from the battery compartment.
- Connect the battery to the battery cable using the plug.
- Store the battery and the battery cable in the battery compartment.

① Make sure that the battery cable or plug does not protrude from the battery compartment.

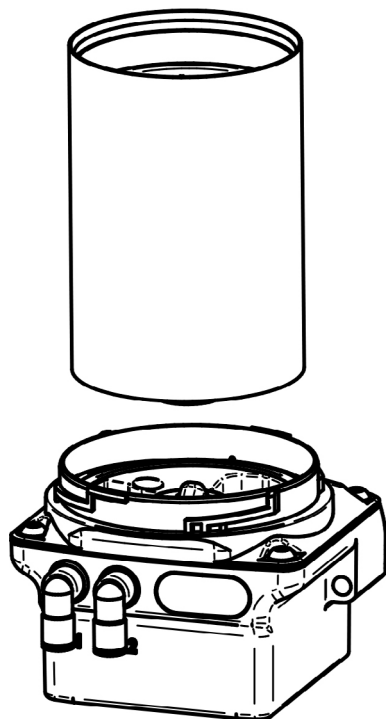


4. Unscrewing the cartridge cap.

- Turn the cap on the lubricant cartridge counterclockwise and pull it off.

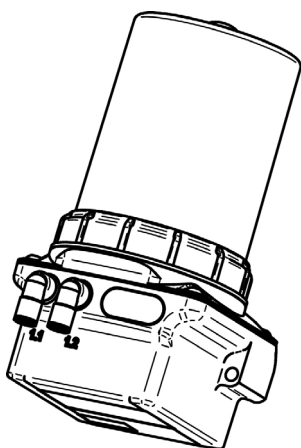
① Pay attention to cleanliness when carrying out the work. It is imperative that dirt and foreign bodies do not enter the cartridge.

5. Mounting the lubricant cartridge



- Place the full lubricant cartridge on the FP4 B.
- Turn the lubricant cartridge clockwise onto the FP4 B.

① The end position is reached after two full rotations when the label of the lubricant cartridge is aligned with the front label of the FP4 B.



6. Assembling the housing on the power unit of the FP4 B.

- Place the dismantled housing on the FP4 B and press it onto the power unit.
- Fasten the housing to the power unit by turning the retaining ring clockwise.

① The retaining ring must snap into place when turning and be completely tightened.

5.3 Commissioning

Mount the FP4 B carefully according to the steps described in chapter 5.2. Depending on the scope of delivery, you must also carry out the following additional measures for the first-time commissioning:

1. Mechanical fastening

Fix the FP4 B mechanically. Pay particular attention to the maximum tightening torques permissible for the M5 female threads!

2. Check the assembly

Make sure that the FP4 B is properly and completely assembled. In particular, the battery must be inserted and a lubricant cartridge must be fitted.

3. Power on

If you want to put the FP4 B into operation, switch on the FP4 B. Only if you switch the FP4 B on, it delivers lubricant to the lubrication point according to the settings. The detailed description for powering on can be found in chapter 6.3.3.

4. Execute FIL function

Execute the FIL function. The detailed description can be found in chapter 6.3.10. FP4 B performs a certain number of strokes and transports the lubricant from the cartridge to the outlet.

5. Hydraulic connection

Connect the consumer hydraulically to the FP4 B. If you connect tubes to the FP4 B, make sure that the tubes and connectors are installed tightly, cleanly and correctly.

① Ideally, use tubes prefilled with the appropriate lubricant!

6. Check the settings on FP4 B

Check the factory settings of FP4 B with the required values for the lubrication point and adjust them if necessary. Changes at the FP4 B must be made in the SET-Menu, see chapter 6.3.6 or in the PRO-Menu, chapter 6.3.8 or 6.3.9.

6. Operation and settings

6.1 General information

What you should know about operating and setting the FP4 B:

✓The FP4 B is suitable as a multi-point lubricator for one or two lubrication points. However, depending on the specific application, FP4 B can also supply a limited number of lubrication points reliably and cleanly with lubricant. Accessories from the manufacturer can be connected to the FP4 B. If necessary, changes must be made to the FP4 B settings to ensure safe and reliable operation.

✓The FP4 B is a cycle-controlled lubricant dispenser which operates autonomously and time-based via the integrated microelectronics. The FP4 B cyclically delivers a defined quantity of lubricant from the cartridge to the outlet. Two operation modes can be selected. The **Hour-Mode -h-** allows setting the number of cycles (c) after a pause time (h) in hours. The cycles (c) are distributed when the pause time has expired. Pause times (h) between 1...240 hour(s) and cycles (c) between 1...30 can be set.

The **Empty-Time-Mode Et** allows the emptying time of the cartridge to be set in months. Emptying times between 1...36 month(s) and cycles (c) between 1...30 can be set.

✓A dispensing cycle consists of at least one (1) donation (stroke) and can consist of a maximum of thirty (30) donations (strokes). Up to thirty (30) donations (strokes) per outlet are made in direct succession. After the end of the lubrication cycle, the FP4 B rests until the set pause time h has elapsed and automatically carries out the next lubrication cycle after the set pause time h has elapsed.

✓The disposable interchangeable cartridge with 250ml or 400ml lubricant guarantees a controlled and constant quality of the lubricant and is filled without air bubble inclusions. The FP4 B allows a high supply security of the lubrication point and prevents failures. The FP4 B in its present version is designed exclusively for the lubricant grease.

✓The FP4 B cannot be used in the present version without a lubricant cartridge and suitable battery. Both can - depending on the version ordered - already be included in the scope of delivery and may already be connected and installed in the FP4 B.

✓For operation under normal operating conditions, FP4 B can be operated with an Alkaline battery, for increased requirements with the more powerful Lithium battery.

✓The respective conditions of the FP4 B can be seen in the LCD, which additionally enables the optical recognition of the condition by means of coloured LEDs.

✓If you have any questions about your application and the correct settings for FP4 B, please contact the manufacturer (chapter I.II).

① If you have purchased a FP4 B in the 400ml version, you can use the 250ml and 400ml cartridge sizes. If you have purchased a FP4 B in the 250ml version, you can only use the 250ml cartridge size.

6.2 Factory settings

The FP4 B is always delivered ex works with the following settings:

Operation mode	Hour-Mode -h-	
State	OFF	FP4 B is switched off

① The factory settings foresee using the FP4 B in the Hour-Mode -h-. If you want to operate the FP4 B in **Empty-Time-Mode Et**, you have to make changes in the SET-Menu of the FP4 B, chapter 6.3.6.

6.2.1 Default settings Hour-Mode -h-

Pause time	$h = 3$	The pause time is 3 hours.
Number of cycles	$c = 1$	The number of cycles is one (1) stroke during the dispensing time.

① The default settings in the Hour-Mode when using a FP4 B with one (1) lubricant outlet result in an emptying time (service life) of 338 days (= 11 months) for a full 400ml lubricant cartridge, provided that the FP4 B is permanently switched on and no special dispensations have been made. Within approx. 3 hours, the FP4 B will deliver one donation per stroke (0.16 cm^3).

① If you use the FP4 B with one (1) lubricant outlet, a dispensing stroke will be delivered from one outlet at the end of the pause time. If you are using the FP4 B with two (2) lubricant outlets, one delivery of one stroke per outlet will be delivered at the end of the pause time. The pause time is doubled.

● Verify that the default settings are appropriate for your application and that the lubrication point is supplied with the correct amount of lubricant per time unit. If this is the case, you can operate the FP4 B with the default settings in the Hour-Mode -h-.

If this is **not** the case, change the values for the dispensing time h and number of cycles c accordingly; see chapter 6.3.8 for an explanation of how to make these changes.

① To use FP4 B, it must first be properly mounted and installed and then switched on. Installation is very simple and described in detail in chapter 5.2; switching on is described in chapter 6.3.3.

① If you order a special version of FP4 B from the factory, the information contained in the supplement is authoritative for you!

6.2.2 Default settings Empty-Time-Mode Et

Emptying time	Et = 6	The emptying time of one (1) cartridge is 6 months.
Number of cycles	c = 1	The number of cycles is one (1) stroke during the dispensing time.

① The default settings in the Empty-Time-Mode when using a FP4 B with one (1) lubricant outlet result in an emptying time (service life) of 6 months for a full 250ml lubricant cartridge, provided that the FP4 B is permanently switched on and no special dispensations have been made. Within approx. 3,3 hours, the FP4 B will deliver one donation per stroke (0.16 cm^3). When using a 400ml cartridge, the FP4 B will deliver a single stroke (0.16 cm^3) of the dispenser within approximately 1,6 hours.

① If you use the FP4 B with one (1) lubricant outlet, a dispensing stroke will be delivered from one outlet at the end of the pause time. If you are using the FP4 B with two (2) lubricant outlets, one delivery of one stroke per outlet will be delivered at the end of the pause time. The pause time is doubled.

● Verify that the default settings are appropriate for your application and that the lubrication point is supplied with the correct amount of lubricant per time unit.

If this is the case, you can operate the FP4 B with the default settings in the Empty-Time-Mode Et.

If this is **not** the case, change the values for the emptying time t accordingly; see chapter 6.3.9 for an explanation of how to make these changes.

① To use FP4 B, it must first be properly mounted and installed and then switched on. Installation is very simple and described in detail in chapter 5.2; switching on is described in chapter 6.3.3.

① If you order a special version of FP4 B from the factory, the information contained in the supplement is authoritative for you!

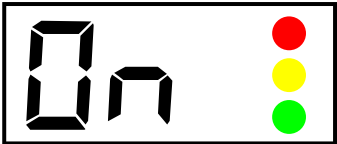
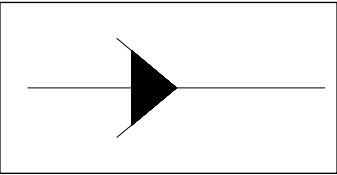
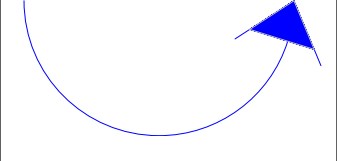
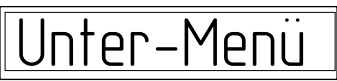
6.3 Menu and LCD messages

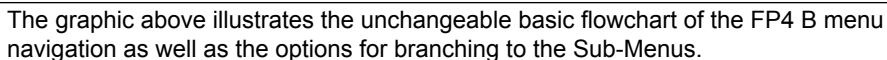
The LCD of the FP4 B can be used to read information optically, to change settings in conjunction with the activation and programming key on the underside of the FP4 B, or to trigger individual actions.

In principle, settings can be changed and actions triggered both when the FP4 B is switched off (OFF) and when it is switched on (ON).

The individual submenus are presented, described and explained in detail in chapters 6.3.4 to 6.3.10.

The symbolic representations used below are described as follows:

Symbol	Description	Note	Detail chapter
	LCD display	The LCD displays information both during operation and for programming purposes.	6.3.1
	Sequence arrow	The black sequence arrow indicates the unchangeable basic structure of the menu.	./.
	Action arrow	The blue action arrow shows the sequence of touching the action area with the activation and programming key once.	6.3.2
	Sub-Menu	In the respective submenus information can be read, dispensing processes can be initiated and settings can be changed.	6.3.4 to 6.3.10



① The INF-Menu can only be accessed from the OFF mode (FP4 B is switched off). The INF-Menu provides you with an informative overview of the current FP4 B settings. For details see chapter 6.3.4.

① The SET-Menu can only be accessed from the OFF mode (FP4 B is switched off). The SET-Menu allows you to make changes to the operating mode. Details can be found in chapter 6.3.6.

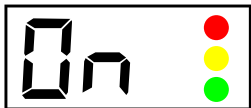
① The RUN-Menu can only be accessed from the ON mode (FP4 B is switched on). The RUN-Menu allows you to manually trigger a single donation at the FP4 B. For details see chapter 6.3.7.

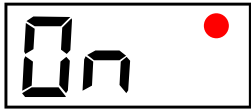
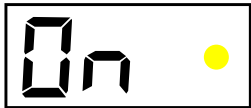
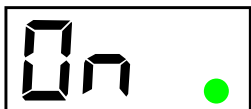
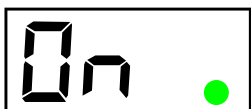
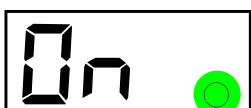
① The PRO-Menu is only accessible from the ON mode (FP4 B is switched on). The PRO-Menu allows you to make changes to the FP4 B settings - and thus to its dispensing behavior. For details see chapter 6.3.8.

① The FIL-Menu is only accessible from the ON mode (FP4 B is switched on). The FIL menu allows you to manually trigger a fixed number of donations to the FP4 B. For details see chapter 6.3.10.

6.3.1 LCD

For optical output, information in the various states is displayed on the LCD via FP4 B. You will be supported by three coloured LEDs to the right of the LCD, depending on the state of the FP4 B. This allows you to assess the condition of the FP4 B from a distance; the following applies: green: OK; red: Error. The following tables show the LED assignment on the LCD as well as the explanation of the respective output:

Assignment (graphic)	Assignment (in words)
	upper LED: red medially LED: yellow lower LED: green

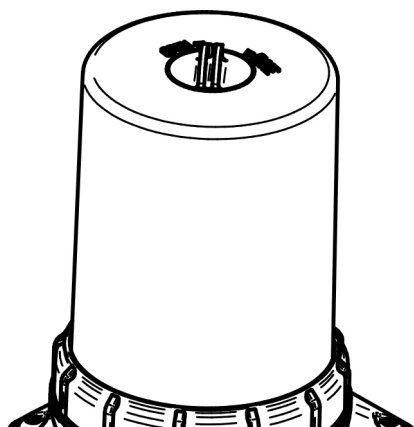
LCD	Description	Naming	Detail chapter
	The red LED only lights up if there is an error. The FP4 B must be ON before the error occurs.	Error with the FP4 B	6.4
	The yellow LED only lights up if the activation and programming key has touched the action surface (activation and programming key detected).	Activation and programming key detected by FP4 B	6.3
	The green LED lights up during a dispensing process for approx. 10...18 seconds.	FP4 B dispenses lubricant	6.3
	The green LED lights up when changes are possible and the activation and programming key was previously detected.	Changes possible	6.3
	The green LED flashes every 60 seconds when FP4 B is ON and there is no error.	FP4 B is ready for use	6.3
	The green LED flashes 2x when a value has been confirmed. In addition to the green LED, the LCD also flashes 2x.	Acceptance of changed value	6.3

Display in LCD		Meaning	Chapter
<i>dark</i>		Battery not connected; battery completely discharged	6.3.3
OFF		FP4 B is switched off	6.3.3
On		FP4 B is ready for operation; FP4 B dispenses lubricant in accordance to the operating mode and the set values	6.3.3
Errors			
E1		Error E1 (Empty Cartridge)	6.4
E2		Error E2 (Overload)	6.4
E3		Error E3 (Undervoltage, battery empty)	6.4
E4		Error E4 (serious mistake)	6.4
Sub-Menu			
INF	INF-Menu		6.3.4
	b41	Firmware version of the FP4 B	6.3.5
	h06	Currently set value of the pause time h	
	c01	Currently set value of the number of cycles c	
	06	Currenty set value of the emptying time Et	
SET	SET-Menu		6.3.6
	-h-	Operating mode Hour-Mode	
	Et	Operating mode Emptying-Time-Mode	
	250/400	Adjustable value of the cartridge size	
RUN	RUN-Menu		6.3.7
	01...70	During the manually triggered active RUN command ("Quick-Check"/special donation), the LCD displays the approximate back pressure in bar. In addition, the green LED lights up.	
PRO	PRO-Menu		6.3.8
	h1...240	Adjustable setting of the pause time h	6.3.9
	c1...30	Adjustbale setting of the number of cycles c	
	01...36	Adjustable setting of the emptying time Et	

FIL	FIL-Menu		6.3.10
	01...70	During the manually triggered active FIL command, the LCD displays the approximate back pressure in bar. In addition, the green LED lights up.	
	Clr	If the process is aborted during the FIL command, Clr appears first.	
Additional character on the LCD			
MAX		After each cycle the maximum back pressure is displayed in bar.	
1 / 2		During a dispensing process, the FP4 B indicates from which outlet lubricant is being pumped.	

6.3.2 Actions with the activation and programming key

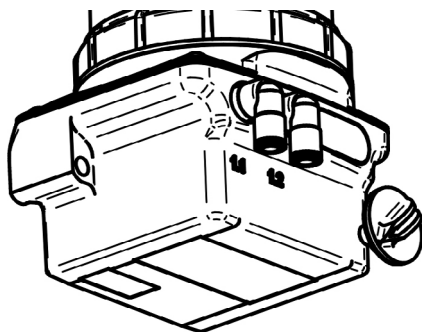
The activation and programming key attached to the housing of the FP4 B allows you to perform actions and changes in the settings of the FP4 B. This activation and programming key can be easily and permanently stored on the FP4 B.



1. Remove the activation and programming key.

- Turn the activation and programming key to the OPEN position and remove it from the housing of the FP4 B.

① The activation and programming key is stored in the opening on the top of the housing of the FP4 B. It is also used to seal the FP4 B.



2. Guide the activation and programming key to the action area.

- Place the activation and programming key on the action area on the front of the FP4 B.

- ➔ As soon as the activation and programming key on the action area has been detected by FP4 B, the yellow LED in the LCD lights up. The menu runs in a rhythm of approx. 2 seconds.

- Remove the activation and programming key from the action area as long as the desired menu item is displayed in the LCD.

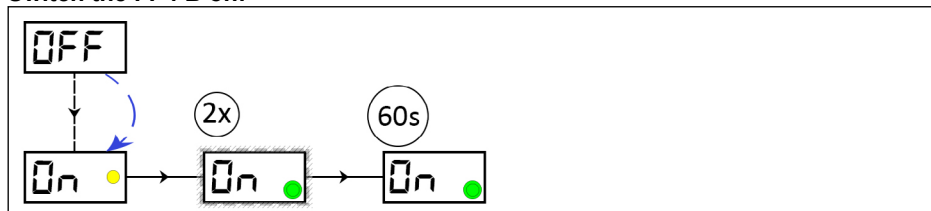
- ➔ The yellow LED disappears. You have performed an action. The LCD flashes together with the green LED twice.

- At the end of the action or settings, insert the activation and programming key again into the hole provided on the housing of the FP4 B. Then turn the activation and programming key to the CLOSE position to restore the sealing effect.

①Please note, however, that in the event of faults or changes to be made, no changes or actions can be carried out on the FP4 B without the activation and programming key. If you do **not** reattach the activation and programming key to the housing of the FP4 B after carrying out actions on the FP4 B, there is no separation from the environment and dirt can get into the housing. The activation and programming key must be remounted in the housing of the FP4 B after actions have been performed.

6.3.3 Switching on and off

Switch the FP4 B on:



✓FP4 B is switched off (OFF).

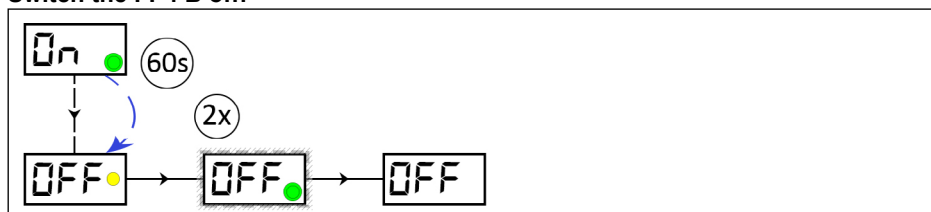
●Hold the activation and programming key on the action area. The yellow LED lights up. Leave the activation and programming key on the action area until ON is displayed in the LCD. Remove the activation and programming key from the action area as long as ON is displayed in the LCD. The yellow LED disappears; the LCD flashes together with the green LED twice.

➡ If no error is detected during the FP4 B self-check, ON is displayed in the LCD.

The green LED lights up once every 60 seconds, FP4 B is ready for operation and will dispense lubricant according to the set values.

●Insert the activation and programming key into the hole provided on the underside of the FP4 B.

Switch the FP4 B off:



✓FP4 B is ON, the green LED flashes every 60 seconds.

●Hold the activation and programming key on the action area. The yellow LED lights up. Leave the activation and programming key on the action area until OFF is displayed in the LCD. Remove the activation and programming key from the action area as long as OFF is displayed in the LCD. The yellow LED disappears; the LCD flashes together with the green LED twice.

➡ FP4 B is OFF; OFF appears in the LCD. FP4 B stops dispensing lubricant.

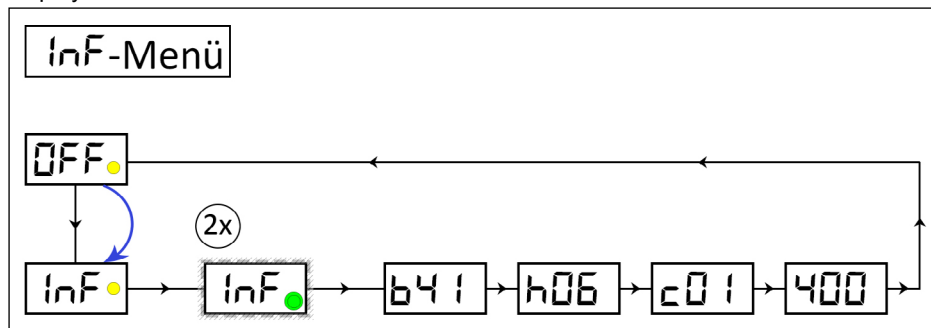
●Insert the activation and programming key into the hole provided on the underside of the FP4 B.

①FP4 B can be switched off in any state (normal operating state or error) in the manner described here.

6.3.4 INF-Menu operating mode Hour-Mode -h-

The INF-Menu is used to inform the user about the firmware used in the FP4 B and the settings made and currently active (values of the adjustable variables h and c that can be changed in the PRO-Menu).

In the INF-Menu nothing can be changed by the user. The values of the parameters are displayed in a fixed order.



b	Alphanumeric name of the FP4 B firmware
h	set value of variable h pause time
c	set value of variable c number of cycles
400	value of the size of the lubricant cartridge

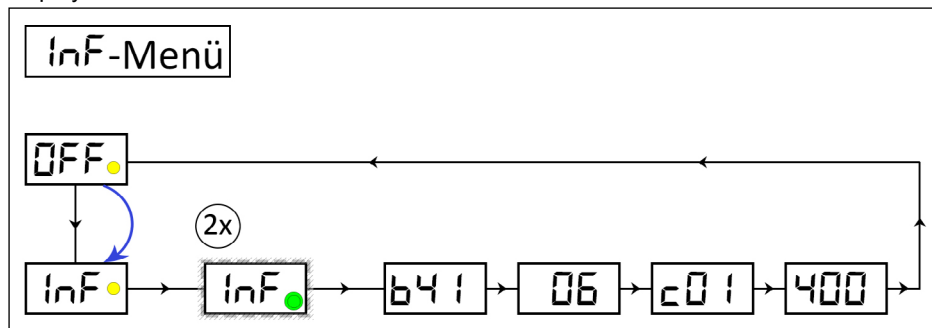
- Remove the activation and programming key from the upper housing of the FP4 B and place it on the action area.
- Hold the activation and programming key on the action area. The yellow LED lights up. Leave the activation and programming key on the action area until INF is displayed in the LCD. Remove the activation and programming key from the action area as long as INF is displayed in the LCD. The yellow LED disappears; the LCD flashes together with the green LED twice.
- ⇒ FP4 B informs you optically on the LCD about the set values.
- Insert the activation and programming key into the hole provided on the housing of the FP4 B.

① The INF-Menu can only be accessed from the OFF mode (FP4 B is switched off). When you have entered the INF-Menu, you will return to the OFF mode.

6.3.5 INF-Menu operating mode Empty-Time-Mode Et

The INF-Menu is used to inform the user about the firmware used in the FP4 B and the settings made and currently active (value of the adjustable variable Et that can be changed in the PRO-Menu).

In the INF-Menu nothing can be changed by the user. The values of the parameters are displayed in a fixed order.



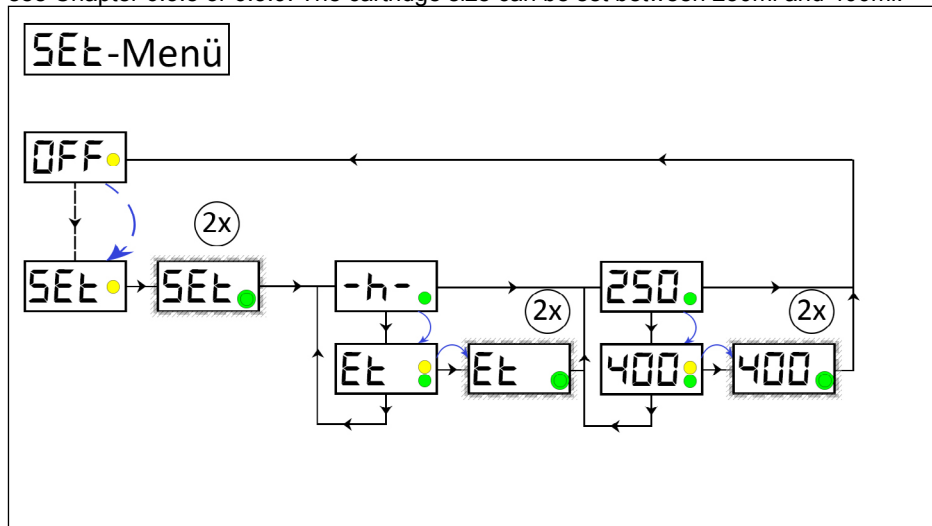
n	Alphanumeric name of the FP4 B firmware
Et	set value of the variable Et emptying time in months
c	set value of variable c number of cycles
400	value of the size of the lubricant cartridge

- Remove the activation and programming key from the upper housing of FP4 B and place it on the action area.
- Hold the activation and programming key on the action surface. The yellow LED lights up. Leave the activation and programming key on the action area until INF is displayed in the LCD. Remove the activation and programming key from the action area as long as INF is displayed in the LCD. The yellow LED disappears; the LCD flashes together with the green LED twice.
- ⇒ FP4 B informs you optically on the LCD about the set values.
- Insert the activation and programming key into the hole provided on the housing of the FP4 B.

① The INF-Menu can only be accessed from the OFF mode (FP4 B is switched off). When you have entered the INF-Menu, you will return to the OFF mode.

6.3.6 SET-Menu

The SET-Menu allows you to change the operating mode and the size of the used cartridge of the FP4 B. You can switch between **Hour-Mode -h-** and **Empty-Time-Mode Et**. The Hour-Mode -h- allows you to set the number of cycles (c) after a pause time (h) in hours. The Empty-Time-Mode Et allows you to set the emptying time (Et) of the cartridge in months and the number of cycles (c). Cycles (c) and pause time (h) or emptying time (Et) can be adjusted after selecting the operating mode in the PRO menu, see Chapter 6.3.8 or 6.3.9. The cartridge size can be set between 250ml and 400ml.



-h- Operating mode Hour-Mode

Et Operating mode Empty-Time-Mode

250/400 Changeable parameter of the cartridge size

✓FP4 B is switched off (OFF).

● Remove the activation and programming key from the upper housing of FP4 B and place it on the action area.

● Hold the activation and programming key on the action surface. The yellow LED lights up. Leave the activation and programming key on the action area until SET is displayed in the LCD.

● Remove the activation and programming key from the action area.

➡ The yellow LED disappears; the LCD flashes together with the green LED twice. The LCD displays the currently set operating mode. You now have the option of changing the operating mode.

Changing the operating mode:

- If you want to change the operating mode, move the activation and programming key back to the action area.
- ➞ The yellow LED lights up and the LCD displays the currently unselected operating mode. The yellow LED lights up as long as the activation and programming key is on the action surface; the two adjustable operating modes run alternately.
- When your desired operating mode is displayed on the LCD, remove the activation and programming key from the action area.
- ➞ The yellow LED disappears; the LCD flashes together with the green LED twice. The selected operating mode has now been accepted.

Not changing the operating mode:

- If you do not want to change the operating mode, the activation and programming key must remain removed from the action area.
- ➞ The LCD flashes together with the green LED twice, whereby the operating mode is displayed in the LCD.
- ① The SET-Menu can only be accessed from the OFF mode (FP4 B is switched off). When you have entered the SET-Menu, you will return to the OFF mode.

The LCD now displays the currently set value of the cartridge size. Now you have the possibility to change the value of the used cartridge size.

Changing the used cartridge size:

- If you want to change the cartridge size, move the activation and programming key back to the action area.
- ➞ The yellow LED lights up and the LCD displays the currently unselected cartridge size. The yellow LED lights up as long as the activation and programming key is on the action surface; the two adjustable cartridge sizes run alternately.
- When your desired cartridge size is displayed on the LCD, remove the activation and programming key from the action area.
- ➞ The yellow LED disappears; the LCD flashes together with the green LED twice. The selected cartridge size has now been accepted.

Not changing the cartridge size:

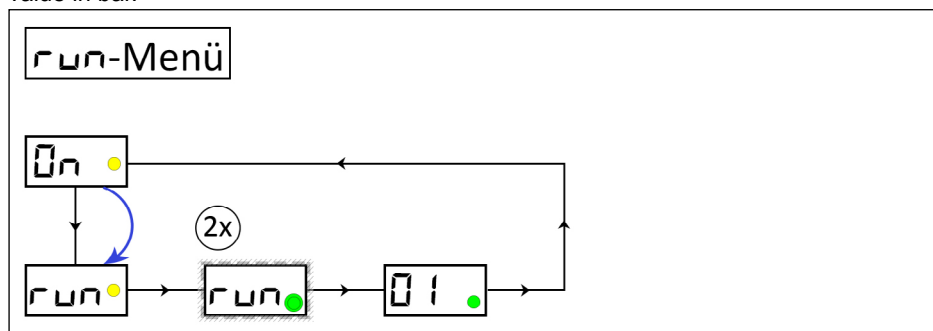
- If you do not want to change the cartridge size, the activation and programming key must remain removed from the action area.
- ➞ The LCD flashes together with the green LED twice, whereby the cartridge size is displayed in the LCD.

① The SET-Menu can only be accessed from the OFF mode (FP4 B is switched off). When you have entered the SET-Menu, you will return to the OFF mode.

① Before commissioning, check that the correct cartridge size is set in the FP4 B software. The cartridge size used and the cartridge size set in the software must be identical!

6.3.7 RUN-Menu

The RUN-Menu is used for manual activation of the FP4 B. A special donation from FP4 B can be triggered in this way. This function can, for example, be used for the advantageous "Quick Check" to manually check the condition of the lubrication point. FP4 B carries out a special donation after triggering the RUN function. After triggering the RUN function, the FP4 B executes exactly as many strokes per outlet as were set in the variable number of cycles c in the PRO menu. During the stroke, the back pressure detected by the integrated microelectronics is displayed in the LCD as an approximate value in bar.



✓ There is no fault or error at FP4 B.

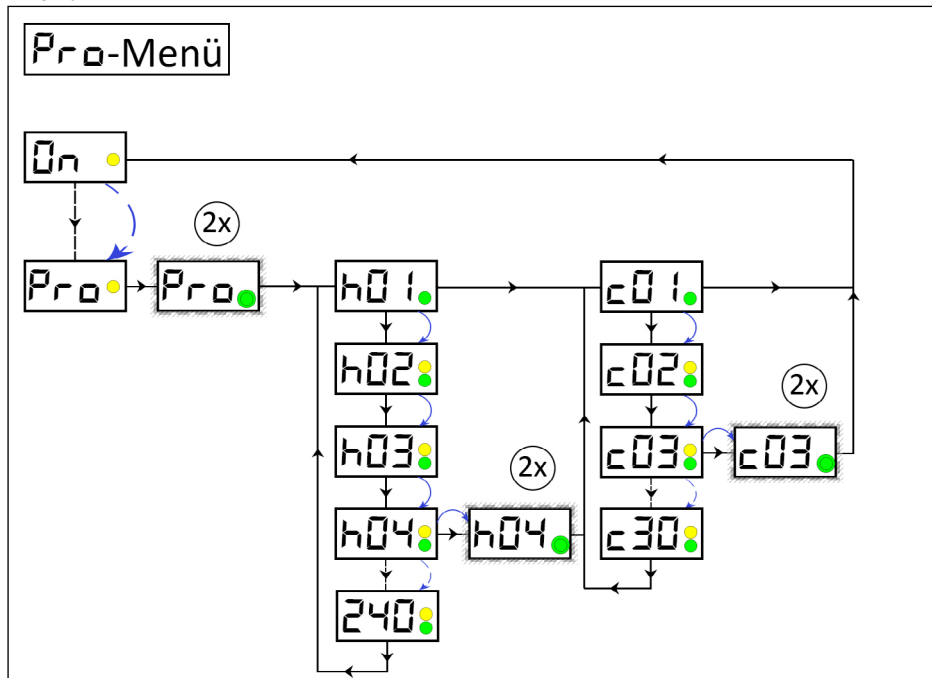
- Remove the activation and programming key from the housing of the FP4 B and place it on the action area.
- Hold the activation and programming key on the action area. The yellow LED lights up. Leave the activation and programming key on the action area until RUN is displayed in the LCD. Remove the activation and programming key from the action area as long as RUN is displayed in the LCD. The yellow LED disappears.
- ➡ The LCD flashes together with the green LED twice. The FP4 B starts to pump the lubricant to the outlet (special donation or "Quick-Check").
- Insert the activation and programming key into the hole provided on the housing of the FP4 B or repeat the special dispenser ("Quick-Check") if necessary.
- Observe the back pressure values displayed on the LCD if they are of interest to you.

① During the dispensing process, the green LED lights up; in addition, the counterpressure for the stroke is displayed in the LCD.

① If you use the RUN function in the Emptying-Time-Mode, the Emptying time is reduced.

① The RUN-Menu can only be reached from the ON mode (FP4 B switched on). When you have entered the RUN-Menu, you will return to the ON mode.

The PRO-Menu allows you to change the settings of the FP4 Bs dispensing behavior. You can change the **pause time h** as well as the **number of cycles c** (number of strokes). The basic rule is that during a dispensing cycle the FP4 B performs exactly the number c of strokes (each 0.16 cm³) specified in the number c of cycles. The dispensing cycle repeats itself after the number of hours specified in the pause time h.



- Remove the activation and programming key from the upper housing of FP4 B and place it on the action area. Hold the activation and programming key on the action surface. Leave the activation and programming key on the action area until PRO is displayed in the LCD.
- Remove the activation and programming key from the action area as long as PRO is displayed in the LCD.
- ➡ The LCD flashes together with the green LED twice. The LCD first displays the currently set value of the pause time h (h_{is}). Now you have the possibility to change the values of the pause time h .

Changing the value of the pause time h:

- If you want to change the value of the pause time h, move the activation and programming key back to the action area.
- ➞ In the LCD the next higher ($h_{is} + 1$) adjustable value of the pause time h is displayed. The green LED lights up as long as the activation and programming key is on the action surface; the other values of the pause time h run through one after the other. However, you can also remove the activation and programming key from the action area and bring it back to the action area shortly afterwards to reach each value one after the other. If the final value of the pause time h of $h=240$ is reached and no value has been selected, the menu returns to $h=01$ and the cycle can be restarted.
- As long as the new value you choose for the pause time h (h_{new}) is displayed in the LCD, remove the activation and programming key from the action area.
- ➞ The yellow LED disappears, the green LED and the LCD flash 2x. The selected new value ($h_{new} = h_{is}$) of the pause time h has now been accepted. The submenu will now automatically take you to the values of the number of cycles c.

No changing of the value of the pause time h:

- If you do not want to change the value of the pause time h, the activation and programming key must remain removed from the action area immediately after entering the PRO-Menu.
- ➞ The LCD as well as the green LED flashes twice and the pause time h is displayed in the LCD. The submenu now automatically takes you to the values of the number of cycles.

The LCD now displays the currently set value of the number of cycles c (c_{is}). Now you have the possibility to change the values of the number of cycles c.

Changing the value of the number of cycles c:

- If you want to change the value of the number of cycles c, move the activation and programming key back to the action area.
- ➞ In the LCD the next higher ($c_{is} + 1$) adjustable value of the number of cycles c is displayed. The green LED lights up as long as the activation and programming key is on the action surface; the other values of the number of cycles c run through one after the other. However, you can also remove the activation and programming key from the action area and bring it back to the action area shortly afterwards to reach each value one after the other. If the final value of the number of cycles c of $c=30$ is reached and no value has been selected, the menu returns to $c=01$ and the cycle can be restarted.
- As long as the new value you choose for the number of cycles c (c_{new}) is displayed in the LCD, remove the activation and programming key from the action area.
- ➞ The yellow LED disappears, the green LED and the LCD flash 2x. The selected new value ($c_{new} = c_{is}$) of the pause time h has now been accepted.

No changing of the value of the number of cycles c:

- If you do not want to change the value of the number of cycles c, the activation and programming key must remain removed from the action area immediately after entering the PRO-Menu.

- ➡ The LCD as well as the green LED flashes twice and the number of cycles c is displayed in the LCD.

- Insert the activation and programming key into the hole provided on the housing of the FP4 B.

① The PRO-Menu can only be reached from the ON mode (FP4 B switched on). When you enter the PRO-Menu, you will return to the ON mode.

① If you have made changes to the values of the pause time h or the values of the number of cycles c in the PRO-Menu and the FP4 B is otherwise ready for operation (battery full and inserted as well as a cartridge fitted), the FP4 B will immediately start with the calculated waiting time until the next pause.

- Observe the back pressure values displayed on the LCD if they are of interest to you.

① During the pause process, the green LED lights up; in addition, the counterpressure for the stroke is displayed in the LCD.

The parameters that can be set for the pause time h and the number of cycles c and their respective permissible values are specified as follows:

h := **Pause time** in hours (h).

The dispensing time can be set between 1 | 2 | 3 | ... | 240 hours.

Values of 1 | ... | 99 are displayed in the LCD with h in front, values of 100 | ... | 240 without h in front.

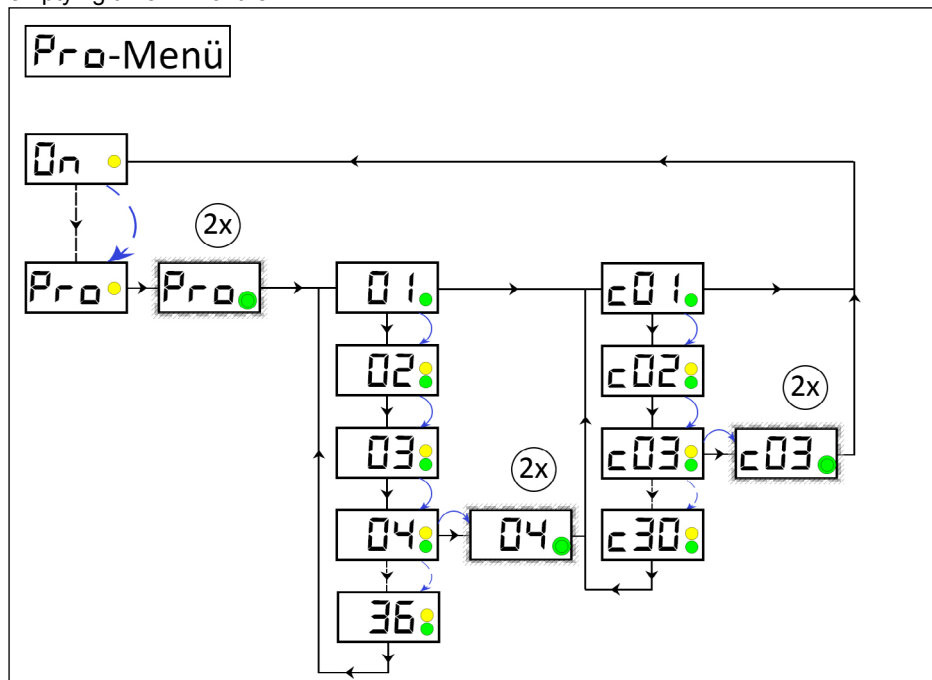
The time counter integrated in the FP4 B microelectronics starts counting the pause time h after a successful and completed dispensing cycle.

c := **Number of cycles** within a dispensing cycle (c).

The number of cycles c can be set between 1 | 2 | 3 | ... | 30 strokes.

6.3.9 PRO-Menu operating mode Empty-Time-Mode Et

The PRO menu allows you to change the settings of the FP4 B's dispensing behavior. If you are in the Empty-Time-Mode Et, you can change the emptying time Et in months. The FP4 B automatically calculates the pause time between two cycles to reach the set emptying time in months.



✓ There is no fault or error at FP4 B.

- Remove the activation and programming key from the upper housing of the FP4 B and place it on the action area. Hold the activation and programming key on the action surface. Leave the activation and programming key on the action area until PRO is displayed in the LCD.

- Remove the activation and programming key from the action area as long as PRO is displayed in the LCD.

➔ The LCD flashes together with the green LED twice. The LCD first displays the currently set value of the emptying time Et (Et_{is}). Now you have the possibility to change the values of the emptying time Et.

Changing the value of the emptying time Et:

- If you want to change the value of the emptying time Et, move the activation and programming key back to the action area.

➔ In the LCD the next higher ($Et_{is} + 1$) adjustable value of the emptying time Et is displayed. The green LED lights up as long as the activation and programming key is

on the action surface; the other values of the emptying time E_t run through one after the other. However, you can also remove the activation and programming key from the action area and bring it back to the action area shortly afterwards to reach each value one after the other. If the final value of the emptying time E_t of $E_t=36$ is reached and no value has been selected, the menu returns to $E_t=01$ and the cycle can be restarted.

- As long as the new value you choose for the emptying time E_t ($E_{t_{\text{new}}}$) is displayed in the LCD, remove the activation and programming key from the action area.
- ➡ The yellow LED disappears, the green LED and the LCD flash 2x. The selected new value ($E_{t_{\text{new}}} = E_{t_{\text{is}}}$) of the dispensing time h has now been accepted. The submenu will now automatically take you to the values of the number of cycles c .

No changing of the value of the emptying time E_t :

- If you do not want to change the value of the emptying time E_t , the activation and programming key must remain removed from the action area immediately after entering the PRO-Menu.
- ➡ The LCD as well as the green LED flashes twice and the emptying time E_t is displayed in the LCD. The submenu now automatically takes you to the values of the number of cycles.

The LCD now displays the currently set value of the number of cycles c (c_{is}). Now you have the possibility to change the values of the number of cycles c .

Changing the value of the number of cycles c :

- If you want to change the value of the number of cycles c , move the activation and programming key back to the action area.
- ➡ In the LCD the next higher ($c_{\text{is}} + 1$) adjustable value of the number of cycles c is displayed. The green LED lights up as long as the activation and programming key is on the action surface; the other values of the number of cycles c run through one after the other. However, you can also remove the activation and programming key from the action area and bring it back to the action area shortly afterwards to reach each value one after the other. If the final value of the number of cycles c of $c=10$ is reached and no value has been selected, the menu returns to $c=01$ and the cycle can be restarted.
- As long as the new value you choose for the number of cycles c (c_{new}) is displayed in the LCD, remove the activation and programming key from the action area.
- ➡ The yellow LED disappears, the green LED and the LCD flash 2x. The selected new value ($c_{\text{new}} = c_{\text{is}}$) of the pause time h has now been accepted.

No changing of the value of the number of cycles c :

- If you do not want to change the value of the number of cycles c , the activation and programming key must remain removed from the action area immediately after entering the PRO-Menu.
- ➡ The LCD as well as the green LED flashes twice and the number of cycles c is displayed in the LCD.

- Insert the activation and programming key into the hole provided on the housing of the FP4 B.

① The PRO-Menu can only be reached from the ON mode (FP4 B switched on). When you enter the PRO-Menu, you will return to the ON mode.

① If you have made changes to the values of the emptying time E_t in the PRO-Menu and the FP4 B is otherwise ready for operation (battery full and inserted as well as a cartridge fitted), the FP4 B will immediately start with the calculated waiting time until the next dispensing.

- Observe the back pressure values displayed on the LCD if they are of interest to you.

① During the dispensing process, the green LED lights up; in addition, the counterpressure for the stroke is displayed in the LCD.

The parameters that can be set for the emptying time E_t and their respective permissible values are specified as follows:

E_t := **Emptying time** of a full cartridge in months (E_t).

The emptying time can be set between 1 | 2 | 3 | ... | 36 months.

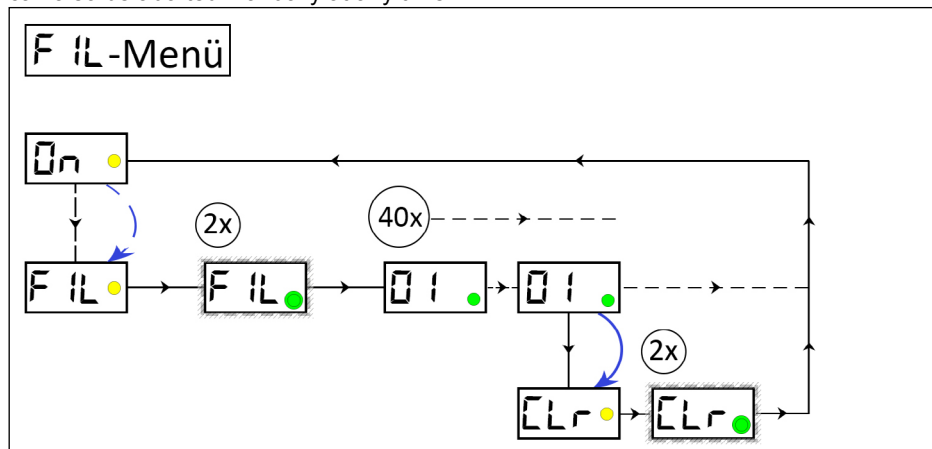
The time counter integrated in the microelectronics of the FP4 B starts counting the pause time at the end of a successful and fully completed dispensing cycle.

c := **Number of cycles** within a dispensing cycle (c).

The number of cycles c can be set between 1 | 2 | 3 | ... | 30 strokes.

6.3.10 FIL-Menu

The FIL-Menu allows you to trigger a defined multiple donation to FP4 B. A total of 40 pump strokes are initiated with the activation. This function enables you to prefill connected accessories (tubes, distributors, etc.) with the lubricant contained in the lubricant cartridge, especially during the initial start-up of FP4 B. However, the process can also be aborted manually at any time.



✓ There is no fault or error at FP4 B.

- Remove the activation and programming key from the upper housing of the FP4 B and place it on the action area. The yellow LED will light up. Leave the activation and programming key on the action area until FIL is displayed in the LCD. Remove the activation and programming key from the action area. The yellow LED disappears.
- ➡ The LCD flashes together with the green LED twice. The FP4 B starts donating. The green LED lights up during each donation.

- If you do not want to cancel the process: Insert the activation and programming key into the hole provided on the housing of the FP4 B.

- ➡ FP4 B dispenses 40 strokes of lubricant.

- If you want to cancel the process: Place the activation and programming key on the action area and wait until the end of a dispensing process (motor run).

- ➡ CLR appears in the LCD.

- Remove the activation and programming key from the action area.

- ➡ FP4 B stops the FIL command.

- Observe the back pressure values displayed on the LCD if they are of interest to you.

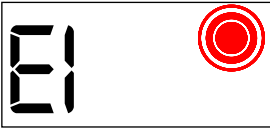
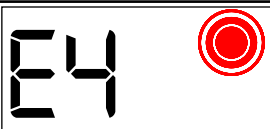
① During the dispensing process, the green LED lights up; in addition, the counterpressure for the stroke is displayed in the LCD.

① If you use the RUN function in the Emptying-Time-Mode, the Emptying time is reduced.

① The FIL-Menu can only be reached from the ON mode (FP4 B switched on). When you enter the FIL-Menu, you will return to the ON mode, even if you cancel FIL prematurely with CLR.

6.4 Error codes

The microelectronics integrated in the FP4 B permanently monitors the status. In the event of irregularities, an addressed error message is displayed on the LCD. The red LED flashes every 5 seconds and also signals an error optically.

LCD	Name	Description	Remedy
	Error E1	Cartridge empty	● Place a new cartridge on FP4 B (see chapter 7.2). ① No confirmation of the error necessary; it is automatically cleared after the remedial action.
	Error E2	Overload; the back pressure at the lubrication point is too high.	● Check the lubrication point and eliminate the cause of the fault. ● Switch FP4 B off (OFF) and on (ON) again.
	Error E3	Battery empty	● Switch FP4 B off (OFF). ● Replace the battery together with the cartridge (see chapter 7.2). ● Switch FP4 B on (ON).
	Error E4	Fatal error	● Disassemble the FP4 B and return it to the manufacturer together with the lubricant cartridge and a description of the fault. ① A fatal error usually occurs in the electronics of the FP4 B and cannot be repaired by you on site. ① The address of the manufacturer can be found in chapter I.II.

7. Maintenance and disposal

- Before starting any maintenance work, inform yourself about the general safety instructions (see Chapter 2) and observe the relevant local and operational safety regulations.
- Do not deactivate any protective device without authorization!

7.1 Maintenance schedule

The following maintenance schedule must be observed for the FP4 B:

Maintenance	Commis- sioning	After 500 hours or after 3 months	Every year	If required
Cleaning	x	x	x	x*
Visual check	x	x	x	x*
Battery change	x**		x***	x*
Cartridge change	x**		x***	x*

* Depending on operating conditions and lubricant consumption

** Depending on delivery status (ordered version)

*** Recommendation after 2 years at the latest

7.1.1 Visual check

- Check the entire lubrication system (FP4 B and any connected accessories including tubes and distributors) for external damage (e.g. loose or loosened tubes) by a thorough and conscientious visual inspection.
- Check the condition of the lubrication point for correct supply of lubricant.
- Replace damaged or defective parts immediately to ensure permanent lubrication.
- Check the filling level of the cartridge on the FP4 B.
- Check possible error messages on the FP4 B and remedy the causes accordingly.

7.1.2 Cleaning

- Clean the FP4 B from dirt using suitable cleaning agents (e.g. absorbent towels, cloths).



NOTICE

Compressed air can damage the seals of the FP4 B as well as transport dirt and foreign bodies into the FP4 B or the lubricant.

- Do not use compressed air to clean the FP4 B.

7.1.3 Recommissioning after maintenance

- Reinstall all safety devices and make sure that no tools remain in the danger area.
- Check that the FP4 B is turned on.
- Carry out a "Quick Check" (test run) using the RUN command (chapter 6.3.7).

7.2 Cartridge and battery change

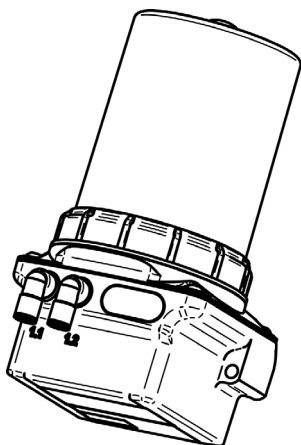
	NOTICE A used lubricant cartridge must not be replaced on the FP4 B, as the integrated stroke counter of the FP4 B is automatically reset by the cartridge sensor after a cartridge has been removed. ▪ Only use full lubricant cartridges.
	NOTICE Only use original lubricant cartridges with lubricant approved by the manufacturer. ▪ Observe the maximum shelf life of lubricant filled in cartridges.
	NOTICE It is not possible to refill empty or opened lubricant cartridges.
	NOTICE Make sure you use the same lubricant in the new cartridge that is already in use. ▪ Compare the data on the lubricant cartridge.
	The battery of the FP4 B must be replaced at the same time as the lubricant cartridge! ▪ Observe the safety instructions for the battery.

In the present version of a battery-powered FP4 B, in addition to changing the cartridge, the battery has to be changed at the same time. The cartridge only needs to be changed if it is empty, the battery is empty or the service life of the lubricant has been exceeded. The cartridge and battery can be changed during normal operation of the FP4 B.

✓FP4 B has a fault (Error E1 or Error E3); the red LED flashes every 5 seconds.

OR

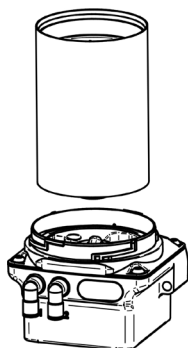
✓The FP4 B battery is completely discharged, the LCD is dark (OFF is not displayed).



1. Remove the housing from the power unit of the FP4 B.

- Separate the housing from the power unit by turning the retaining ring counterclockwise.

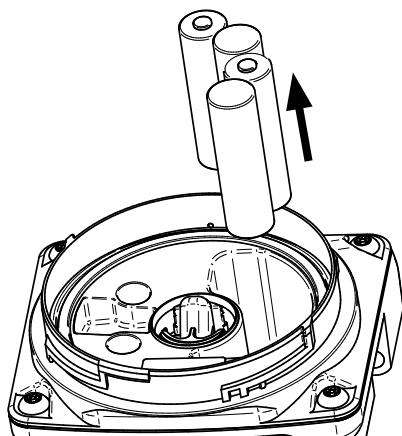
① Make sure that no dirt, water or foreign bodies enters the lubricant inlet.



2. Remove the empty cartridge

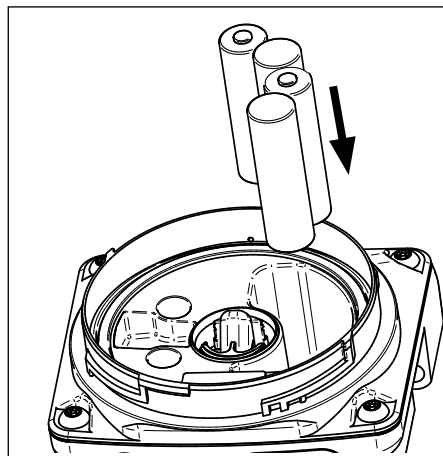
- Unscrew the lubricant cartridge counterclockwise from the FP4 B and discard it.

① Pay attention to cleanliness when carrying out the work. It is imperative that dirt and foreign bodies do not enter the cartridge.



3. Remove the empty battery

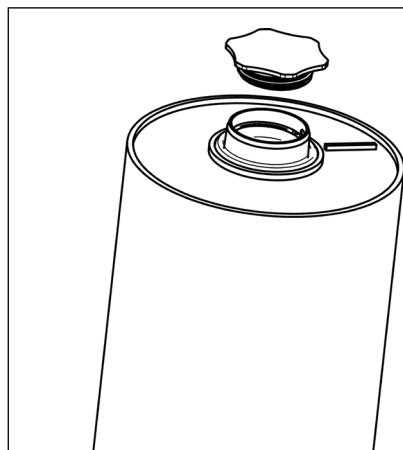
- Use the battery cable to pull the empty battery out of the battery compartment.
- Disconnect the reverse polarity protected plug connection and dispose of the empty battery properly after completion of the work.



4. Inserting the new battery

- Connect the new battery to the battery cable using the reverse polarity protected plug.
- Store the battery and the battery cable in the battery compartment.

① Make sure that the battery cable or plug does not protrude from the battery compartment.

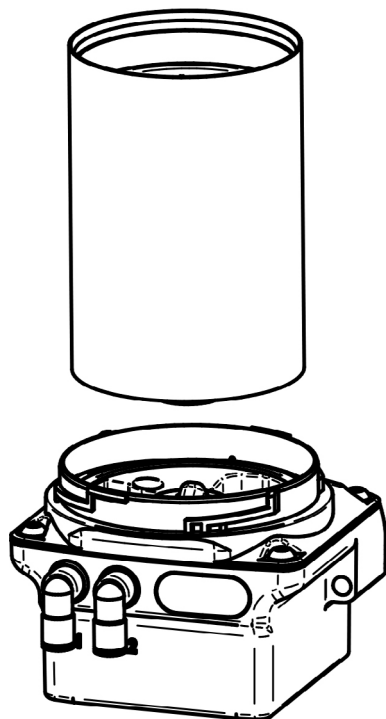


5. Unscrewing the cartridge cap.

- Turn the cap on the lubricant cartridge counterclockwise and pull it off.

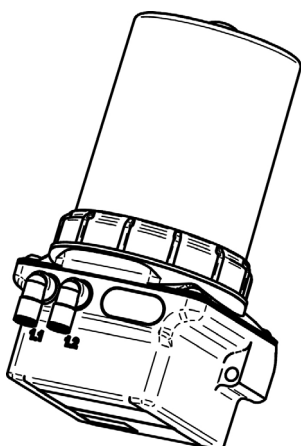
① Pay attention to cleanliness when carrying out the work. It is imperative that dirt and foreign bodies do not enter the cartridge.

6. Mounting the lubricant cartridge



- Place the full lubricant cartridge on the FP4 B.
- Turn the lubricant cartridge clockwise onto the FP4 B.

① The end position is reached after two full rotations when the label of the lubricant cartridge is aligned with the front label of the FP4 B.



7. Assembling the housing on the power unit of the FP4 B.

- Place the dismantled housing on the FP4 B and press it onto the power unit.
- Fasten the housing to the power unit by turning the retaining ring clockwise.

① The retaining ring must snap into place when turning and be completely tightened.

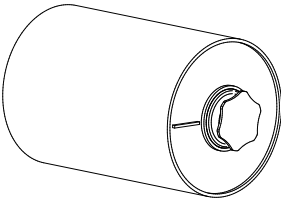
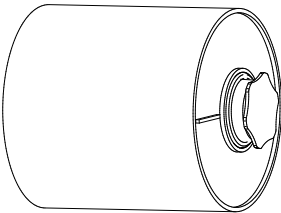
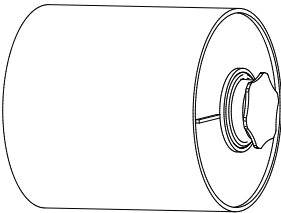
- Carry out the work as described above (steps 1 to 7).
- ➡ If an error was displayed in the LCD before changing the cartridge or battery, the message will now disappear, as will the flashing red LED. A separate confirmation is not necessary. The green LED flashes briefly every 60 seconds.
- ➡ The FP4 B automatically returns to the last active mode (ON or OFF) before the completion of this work.
- ① If the empty state of the cartridge (Error E1) was reached during a dispensing cycle, it is automatically interrupted and continued automatically after completion of the work explained above.

7.3 Disposal

- When disposing the FP4 B, empty or opened cartridges and batteries, observe the relevant national regulations in force.
 - When disposing the FP4 B, observe the relevant safety data sheets and disposal instructions for the individual components.
- ① Batteries cannot be recharged.
- ① It is not possible to refill empty lubricant cartridges.

8. Released accessories

The present FP4 B can be considerably extended by the extensive system and accessory program. This may necessitate changes to the factory and/or the default settings of the FP4 B to ensure reliable and proper operation of the FP4 B together with the hydraulically connected accessories.

Item-Nr.	Illustration	Designation	Application
211516		Battery pack FP4 B, Alkaline	Operation of FP4 B
212028		Battery pack FP4 B, Lithium	Operation of FP4 B
700709		Cartridge FP4, 400ml, TSG OG1	Adhesive grease for open gears
700700		Cartridge FP4, 400ml, TSG U2	Universal grease
700707		Cartridge FP4, 400ml, TSG FG2	H1 grease
700705		Cartridge FP4, 400ml, TSG M2	Multi-Purpose grease
211427		Cartridge FP4, 250ml, TSG OG1	Adhesive grease for open gears
211424		Cartridge FP4, 250ml, TSG U2	Universal grease
701546		Cartridge FP4, 250ml, TSG FG2	H1 grease
211425		Cartridge FP4, 250ml, TSG M2	Multi-Purpose grease
on request		Progressive distributor TSPV 2-50 ... TSPV 8-50	Multi-Point lubrication

8.1 Lubricants

Only use lubricants approved by the manufacturer TriboServ GmbH & Co. KG in the original cartridges developed and manufactured exclusively for FP4 B.

	NOTICE
	The lubricant used in each case differs according to the application. The respective designation can be found on the label of the cartridge.

Further information on lubricants, documentation and safety data sheets can be obtained directly from the manufacturer TriboServ GmbH & Co. KG.

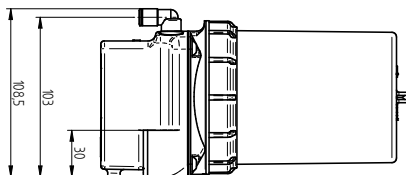
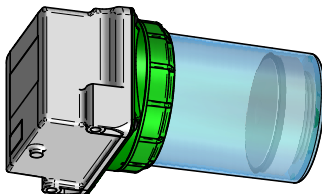
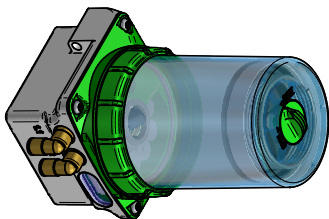
8.2 Tube lengths

In principle, the recommendation is to install the FP4 B as close as possible to the consumer (lubrication point). Ideally, this should be done directly at or on the lubrication point. In cases where this is not possible due to the installation space or for reasons of reachability or accessibility, tubes can also be used between the FP4 B and the lubrication point (or distributor).

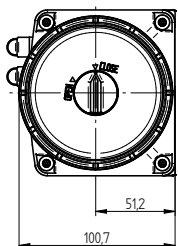
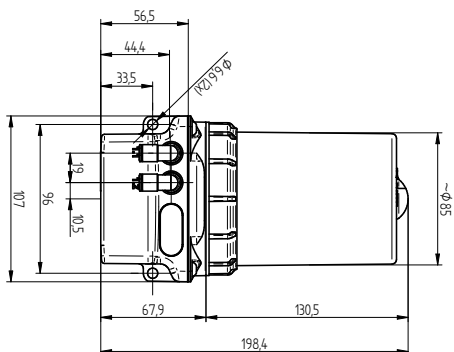
If the case arises that you cannot mount the FP4 B directly at the lubrication point, contact the manufacturer to verify your application. The influence of temperature, the grease used, the hoses and accessories used does not allow a general statement to be made about the possible hose length on the FP4 B.

9. Appendix

9.1 Dimension sheet and installation dimension



Alle Schlauchanschlüsse
für Schlauch A- $\Phi 6$ mm!

[illegible]

9.2 EC/EU Declaration of conformity



Declaration of EG conformity

According to the Machinery Directive 2006/42/EG of 2006, May 17th

Herewith the manufacturer
TriboServ GmbH & Co. KG, Gelthari-Ring 3, D-97505 Geldersheim,
declares that the following lubricating systems

FlexxPump4 – B211, B212, B411, B412, B211A, B212A, B411A, B412A
as well as the FlexxPump4 – B... with the suffix OIL

delivered by us, concerning design and construction as well as the model put into circulation,
comply with the EG directives 2006/42/EG.
In particular, the following harmonized standards were applied:

EN 12100:2011-03 Safety of machinery

According to the EG directive on Electromagnetic Compatibility 2014/30/EU

The manufacturer herewith declares that the following lubricating systems

FlexxPump4 – B211, B212, B411, B412, B211A, B212A, B411A, B412A
as well as the FlexxPump4 – B... with the suffix OIL

delivered by us, concerning design and construction as well as the model put into circulation,
comply with the above mentioned EU directive.
In particular, the following harmonized standards were applied:

EN 61000-6-2, EN 61000-6-4 Electromagnetic Compatibility (EMC)

Authorized representative for the compilation of technical documentation:
Dr.-Ing. Michael Weigand
General Manager
TriboServ GmbH & Co. KG
Gelthari-Ring 3
D-97505 Geldersheim

Geldersheim, 31.01.2020

Dr.-Ing. Michael Weigand, General Manager

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9.3 Spare parts

Item-Nr.	Designation	Application
211516	Battery pack FP4 B, Alkaline	Operation of FP4 B
212028	Battery pack FP4 B, Lithium	Operation of FP4 B



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