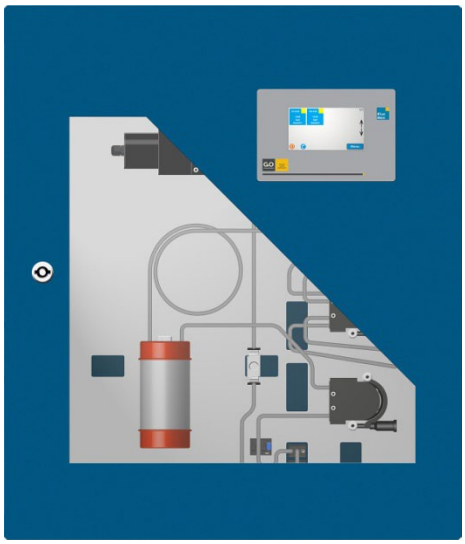
GO SYSTEMELEKTRONIK

WE MAKE LIQUIDS TRANSPARENT.

Manual
BlueMon OP
Commissioning and Maintenance
Orthophosphate
488 2FP0



BlueMon

Version of this manual: 1.3 en

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Within the scope of our obligation for product observance GO Systemelektronik GmbH will endeavour to warn third parties about all identified dangers which could arise from the interaction between hardware and software and from the use of other components. Effective product observance is only possible with adequate information from the end user about the planned field of application and the hardware and software used. If the conditions of use change or if the hardware or software is changed, due to the complex relationships between hardware and software, it is no longer possible to describe all possible dangers and their effects on the total system, in particular on our system. This manual does not describe every possible property and combination of the system. For further information, please contact GO Systemelektronik GmbH.

Manufacturer's declaration

When installing the system it is necessary to ensure correct electrical connection, protection against moisture and foreign bodies and excessive condensation, and system heating which can arise from both correct and incorrect use. It is the responsibility of the installer to ensure that the correct installation conditions are provided.

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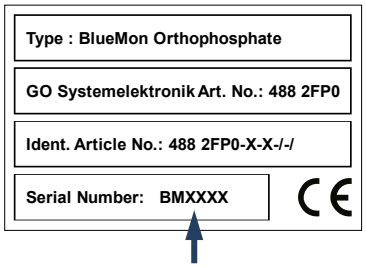
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1 Introduction

This manual describes the **commissioning** and the **maintenance** of the BlueMon Analyser for Orthophosphate in the large housing with the article number 488 2FP0

This manual describes only the commissioning and the maintenance of the BlueMon analyser and not the operation at work.
Operation at work is described in the enclosed *Manual BlueMon Menu Operation*.

To determine the type of the BlueMon, look at the shipping note.
The serial number of BlueMon stands on the type label right down ahead of the housing.



Serial Number

The products of GO Systemelektronik are constantly being developed, therefore deviations between this manual and the delivered product can result. Please understand that no legal claims can be derived from the contents of this manual.

Safety instructions:

	**Danger:** Used if non-observance threatens serious injury or death.
	**Warning:** Used if non-observance threatens slight injuries or serious property damage.
	**Caution:** Used if non-observance threatens minor property damage.


Symbol of safety instruction relating to the use of electricity.

2 Device Information

2.1 Hazard Notes



Danger: Improper handling of electrical devices endangers man and property.
The operation of the BlueMon should only be performed by informed and trained staff using appropriate tools. Incorrect installation could cause serious faults and errors that may damage the device.



Danger: Improper handling of chemicals endangers humans and property.
The operation of the BlueMon should only be performed by informed and trained staff using appropriate tools. Read the allocated safety data sheets of the chemicals carefully and follow the appropriate instructions.

2.2 Notes for Operation



Never deliver the BlueMon to other persons without this manual. The manufacturer is not liable for improper or unintended usage.

This device is designed in accordance with the Low Voltage Directive and the safety regulations for electronic measurement devices.

The correct functioning and operational safety of the device can only be ensured, if in using the operator follows the generally applicable safety precautions and the specific safety instructions in this manual.

- Before connecting the BlueMon with the power supply, make sure that the supply voltage is according to the operation voltage of the BlueMon (see *2.5 Technical Data* there *General Information*).
- The correct functioning and operational safety of the device can be ensured only within the climatic conditions specified in Chapter *2.3 Operation* Conditions in this manual.
- Transporting the device from a cold to a warm environment may cause condensation and therewith function failures. In this case wait until the device temperature is similar to the ambient temperature, and then try a new start.
- Maintenance and repair work may only be performed by a trained person authorized from GO Systemelektronik.

If it can be assumed that the instrument can no longer be operated safely, it must be taken out of service and marked against an inadvertent use.

The security of the user can be affected by the device, if it for example:

- shows visible damages,
- does not work as prescribed any more
- was stored under inexpedient conditions for a longer time,
- was exposed to heavy transport conditions.

When in doubt, give notice to GO Systemelektronik GmbH and send, if necessary, the device for repair or maintenance to GO Systemelektronik GmbH.

2.3 Operation Conditions

A trouble-free operation of the BlueMon requires the fulfilment of the following conditions:

- No one-sided thermal radiation; no direct sunlight
- No vibrations
- The environmental conditions correspond to the IP protection code of the device. Environments with corrosive gases or vapours or with explosion hazard require additional protective measures.
- Ambient temperature 15 - 35 °C; Humidity max. 95 % (non-condensing)
- Operation only in a protected position
- The sample feeds must be free of solids and homogeneous, otherwise a filter must be installed. Samples with particle size > 30 microns require filtration.
- Maximum pressure of the inflowing sample is 0.05 bar, if necessary use a pressure reducer.
- The permissible range of the sample temperature is 10 to 40 °C, if necessary use sample cooling or heating.
- The BlueMon must be accessible for maintenance (illumination, free space, etc.).
- At an ambient temperature > 20 °C reagent cooling is recommended. A Reagent refrigerator can be ordered from GO Systemelektronik (Article-No. 416 5000-X).

2.4 Measurement Method

Orthophosphate is present in ground and surface water and in commercial wastewater.

In an acid solution of orthophosphate with ammonium molybdate, the BlueMon forms complex phosphorus molybdic acids which are reduced to molybdenum blue. The absorbance* of this compound is measured at 810 nm. By adding citric acid, the interference of silica is suppressed.

* In absorption, radiation is absorbed by a substance. Further attenuating effects due to scattering or reflection are summarized in the optics together with the absorption under the term **absorbance**, also called **extinction**.

2.5 Technical Data

expandable with the plug-on board, see Appendix E

Measurement	
Parameter	Orthophosphate in water
Measurement principle	Colorimetry at 810 nm
Measurement ranges	0.0 – 1.0 mg/l | 0.0 – 2.0 mg/l | 0.0 – 10 mg/l | 0.0 – 25 mg/l
Measurement accuracy	< 3 %
Measurement resolution	0.03 – 0.1 mg/l
Minimal process sequence duration	15 min
Calibration	Auto calibration
Sample lines	2 sample lines default Up to 6 sample lines optional

At ambient temperatures > 20 °C cooling of the reagents is recommended.
Reagent refrigerator: Article number 416 5000-X
Samples with particle size > 30 µm need filtration.

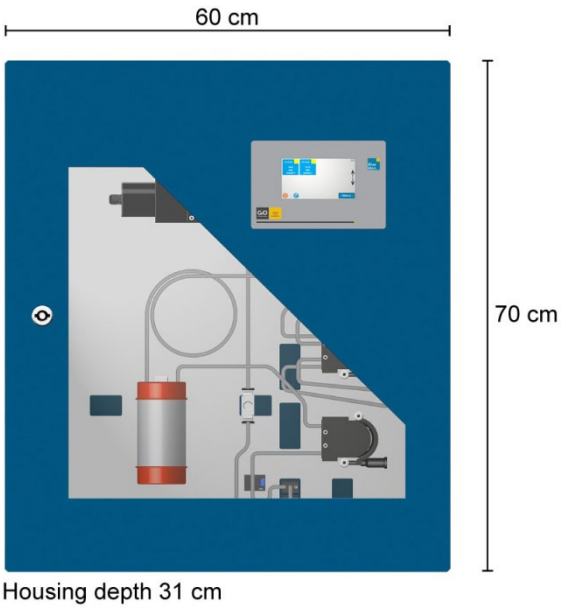
Sensors
1x Photometer (LED 810 nm, intensity adjustable)
1x Connector for pH glass electrode
1x Connector for temperature sensor PT1000 (0 – 80 °C)
1x Connector ORP (Redox) electrode(optional pH)
1x Current input 0 – 20 mA | 4 – 20 mA
4x Digital In
1x Connector for leakage sensor
1x Bubble detector (liquid detector) for sample reagent lack 1x Connector for a second bubble detectors
Expandable with CAN-bus and Modbus

Actuators	
1x Sample heating at the digestor connector with temperature measurement	
1x Stirrer control	
1x Motor control right/left	
3x Motor control (direction of rotation manually switchable)	
6x Relay 24 VDC/GND (called valve relays)	Free relays can be used as relay outputs.
4x Potential-free relays, max. switching voltage 48 V	
Expandable with CAN-bus and Modbus	

Interfaces	
1x Ethernet (Modbus TCP)	
1x RS232 or RS485 (Modbus)	
1x CAN-bus (for connecting further modules, sensors and actuators)	
6x Current output[1]	0 – 20 mA | 4 – 20 mA

General Information		
Voltage supply		Input voltage 85 – 264 VAC; 47 – 63 Hz | 120 – 370 VDC
Power consumption typical		80 W
IP protection code		IP54 (optional IP65) [2]
Colour display		Touchpanel 480 x 272 pixel
Housing	Material Dimensions (WxLxH) Colour	Steel, powder-coated 60 x 70 x 31 cm RAL 5010 (blue)
Empty weight		approx. 45 kg
Sample pressure		0 bar (max. 0.05 bar overpressure)
Sample flow rate		2 - 10 l/h, no suspended solids
Sample temperature		10 – 40 °C
Ambient temperature		15 – 35 °C
Computer		PC 104; 800 MHz; access memory 256 MB
Storage memory		Industrial NANDrive™ 512 MB; optional 2 GB
Operating system		embedded Linux™

2.6 Housing



Housing depth 31 cm

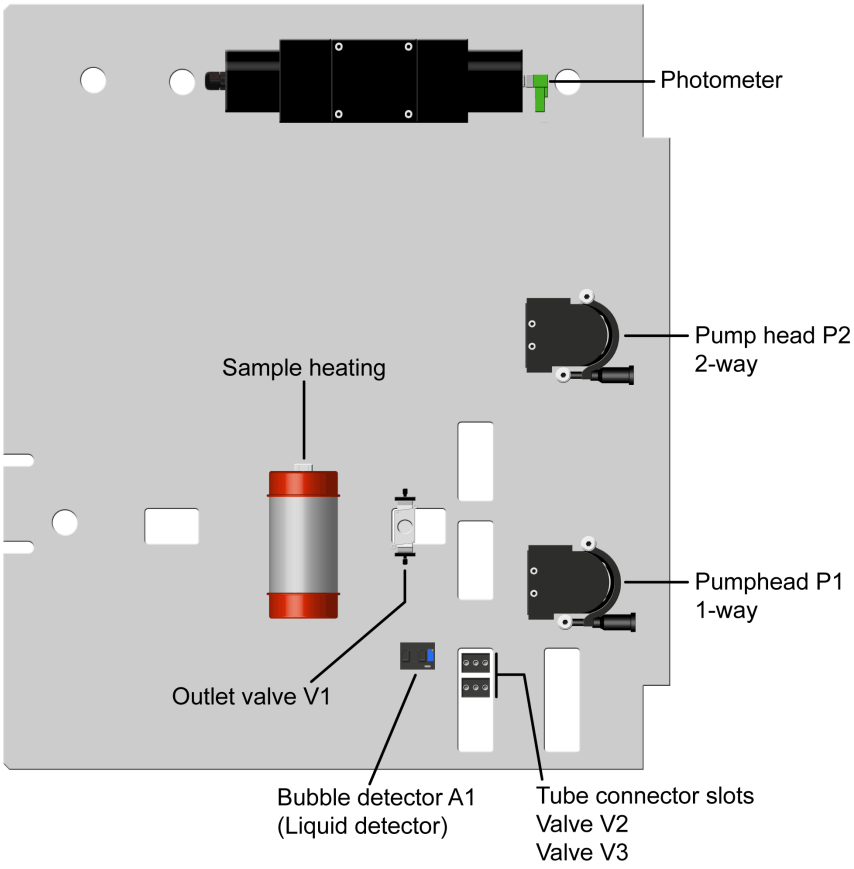
[1] Strictly speaking, a current output is not an interface, but an analogue actuator.

[2] Precondition for compliance with the IP protection code is the use of appropriate protective caps and plugs.

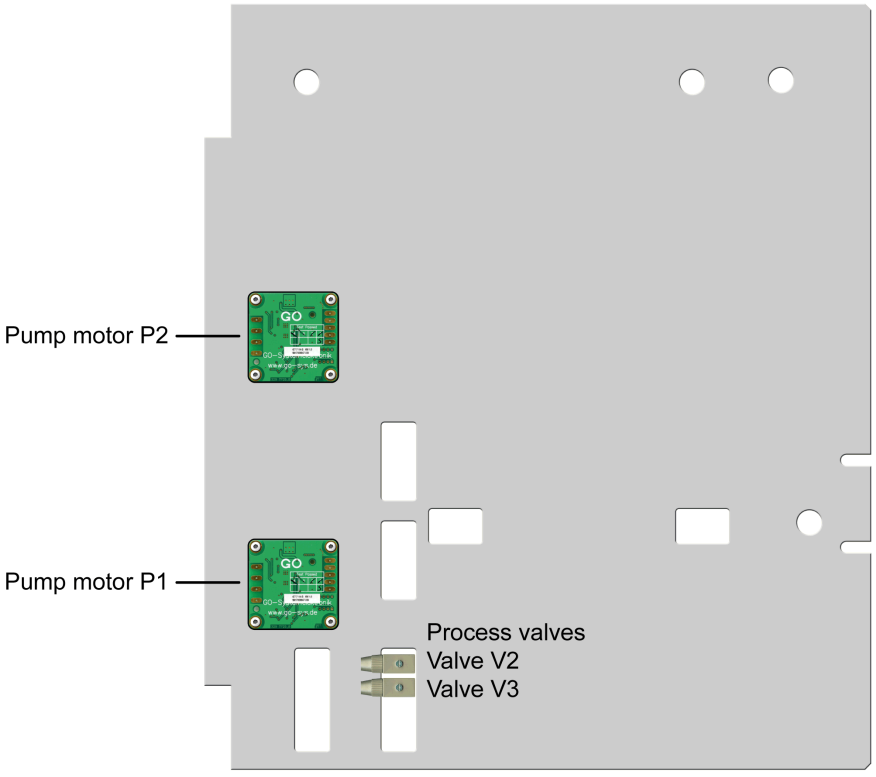
2.7 Device Configuration of the Analyser Plate

Photometer – Orthophosphate analyser – 488 2FP0 – Large housing

Front



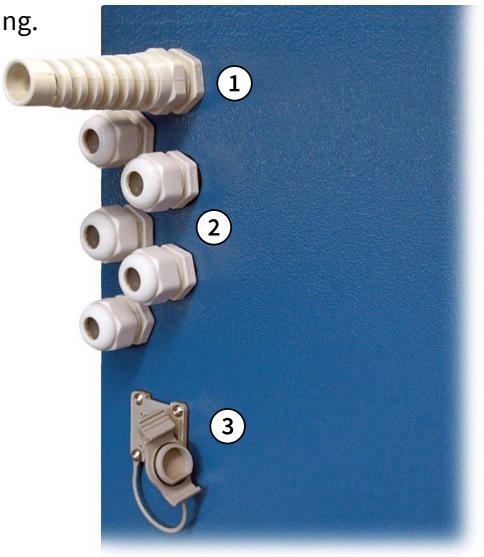
Rear



2.8 Connections

The BlueMon has the following electrical connection options:

The connectors are located at the top left on the left side of the housing.



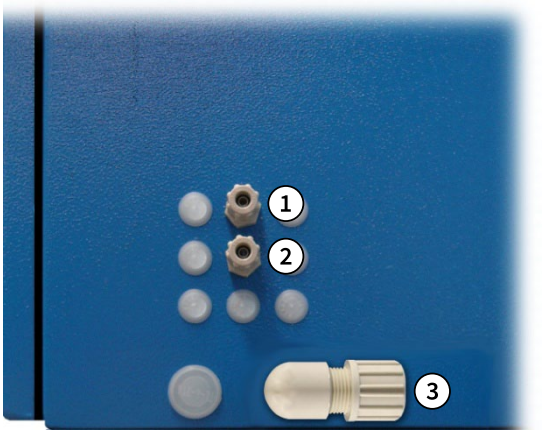
① Feed through power supply (85 – 264 VAC)

② Additional PG glands, e.g. for an antenna cable

③ Connection for a LAN cable in standard or cross-link design with protection cap

The BlueMon has the following liquid connectors:

The connectors are located at the lower left on the right side of the housing.



① Supply connector Sample 1

② Supply connector Sample 2

③ Drain connector

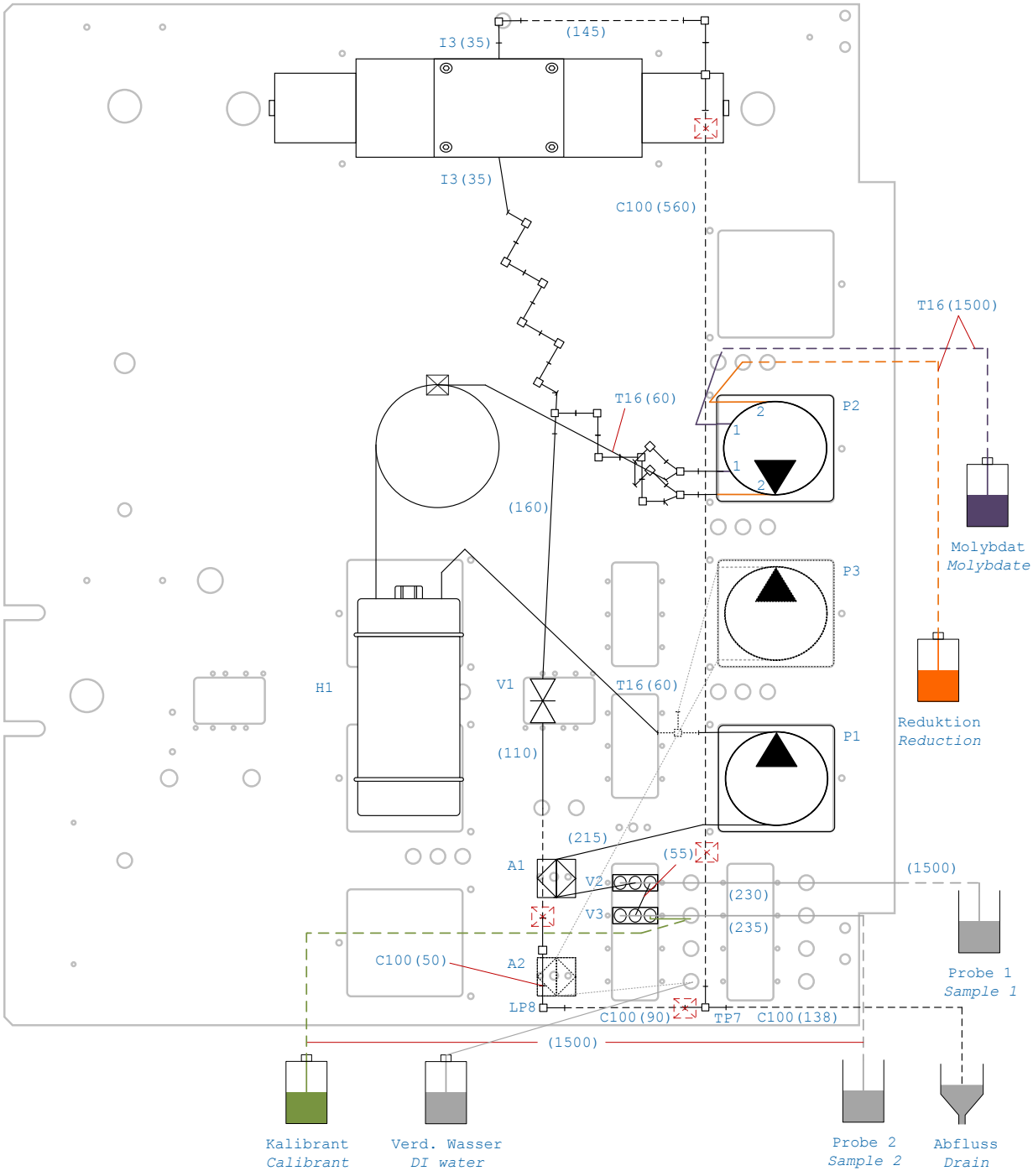
Additional: Holes with protection caps

Mainboard and, if existing, **plug-on board** of the BlueMon are located behind the analyser plate on the back of the housing. The boards are protected by a metal cover; the metal cover is fixed with four M4 screws. On the boards there are further connectors: CAN-bus, Modbus, current output etc. (see Appendix D and Appendix E).

Modems (optional): • UMTS/HSPA modem with antenna • Analogue modem • ISDN-modem

2.9 Tubing Diagram

Photometer – Orthophosphate – 488 2FP0 – Large housing



Legende / *Description of figures*

Fotometer: LED 810 nm
Photometer: *LED 810 nm*

Pumpenschlauch / *Pump tubing*:
P1, P3: M48
P2-1/-2: T16

PX-1 vorne/*front*
PX-2 hinten/*back*

Ablaufschlauch: C100(1500)
Drain Tubing: *C100(1500)*

Schlauchbezeichnung: Typ(Länge)
Tubing Description: *Type(Length)*
Sofern nicht anders bezeichnet: T24(20)
If not otherwise indicated: T24(20)

LP2 TP2 VP2 RP92

Schlauch auf der Rückseite
Tubing on the reverse side
Schlauch auf der Vorderseite
Tubing on the frontside
optionales Bauteil
Element optional

NO NC — Ventil AN *Ventile ON*
NO NC — Ventil AUS *Ventile OFF*

NO – Normally open
NC – Normally closed

Fixierung / *Fixation*
Art no. 330 9760
Art no. 330 9761

2.10 Consumption Material (Tubing-set)

The tubing-set consist of the following components. We recommend ordering the tubing-set as a whole (Article No. 418 6012).

Designation	Article No.	Pieces/Length	Measurement range 0 – 100 mg/l
Tube I3	330 7538	0.07 m	
Tube C100	330 7544	2.36 m	
Tube T24	330 7545	1.17 m	
Tube T16	330 7549	7.62 m	+ 1.5 m
Pump tube T16	330 7552	2 Pcs.	
Pump tube M48	330 7553	1 Pcs.	+1 Pcs.
Tube connector TP2	330 9750	1 Pcs.	+1 Pcs.
Tube connector LP2	330 9751	15 Pcs.	
Tube connector TP7	330 9752	1 Pcs.	
Tube connector RP92	330 9753	2 Pcs.	
Tube connector LP8	330 9754	1 Pcs.	
Tube connector VP2	330 9755	2 Pcs.	
Cable tie	335 7000	4 Pcs.	

2.11 Spare Parts

Designation	Article No.	Pieces/Length	on Dilution
Peristaltic pump 2-way with motor	363 6027	1 Pcs.	
Peristaltic pump 1-way with motor	363 6028	1 Pcs.	+1 Pcs.
Process valve set V2,V3	442 0008	2 Pcs.	
Outlet valve set V1	442 0009	1 Pcs.	
Bubble detector (Liquid detector)	461 6501	1 Pcs.	+1 Pcs.
Photometer 810 nm	461 6800-810	1 Pcs.	
Sample heating	462 0030	1 Pcs.	

2.12 Chemicals

The following estimated annual consumption values are based on continuous operation with a 10 mm cuvette, one calibration per week and a running time of three months.

Article No.	Reagents for phosphate detection	
418 3025	Molybdate solution	5 l
418 3029	Reduction solution	5 l
	Calibration liquid	
418 3520	Phosphate-P Standard 1 mg/l	1 l

The durability of the reagents depends largely on the ambient temperature; cooling is recommended for room temperatures > 20 °C.

3 Installation

3.1 Wall Mounting

The BlueMon is designed for wall mounting. Four screwed wall mountings are located in the corners at the back of the device. see *Appendix H– Device Mounting (large housing)*

The BlueMon must be accessible for maintenance (illumination, free space, etc.).

Warning: The condition of the wall and the mounting material must carry the total weight of the BlueMon (case, reagents, liquids etc.). Depending on the equipment the BlueMon can weigh up to 125 kg. We recommend a mounting with M8 threaded bolts in anchors in a concrete wall.

Warning: The BlueMon must not fall or tip over. Use suitable handling devices (crane, shoulder straps etc.).

Check the attached tipping or shock indicators of the transport box and the housing for evidence of improper transport.

Take the device with suitable load suspension equipment out of the transport box.

After wall mounting open the housing door and remove the foam blocks from the analyser plate, loosen the knurled nut of the analyser plate, swing out the analyser plate and remove the transport locks here also. It is recommended to keep the protective materials for reuse. In case of using a reagent refrigerator from GO Systemelektronik, screw this firmly on the bottom side of the housing (if not supplied already screwed). You can also mount the reagent refrigerator separately.

3.2 Connection of Chemicals and Waste

1. Place the required chemicals in the transport canister underneath the device or into the reagent refrigerator (Article-No. 416 5000-X). Make sure that the height difference between the canisters and the connected pumps does not exceed 1000 mm.
2. If you want to use dilution water in your application, place DI water.
3. Insert the tube ends into the corresponding containers (see *2.9 Tubing Diagram*) and screw the tube firmly.

Caution: Make sure that the reagents and calibration liquids are connected to the appropriate tubing. see *2.9 Tubing Diagram*

Warning: The liquid feeding must take place almost without pressure (max. 0.05 bar).

Caution: Make sure that the sink is not corroded by the chemicals. Observe local discharge requirements.

Note necessary protective measures! see safety data sheet



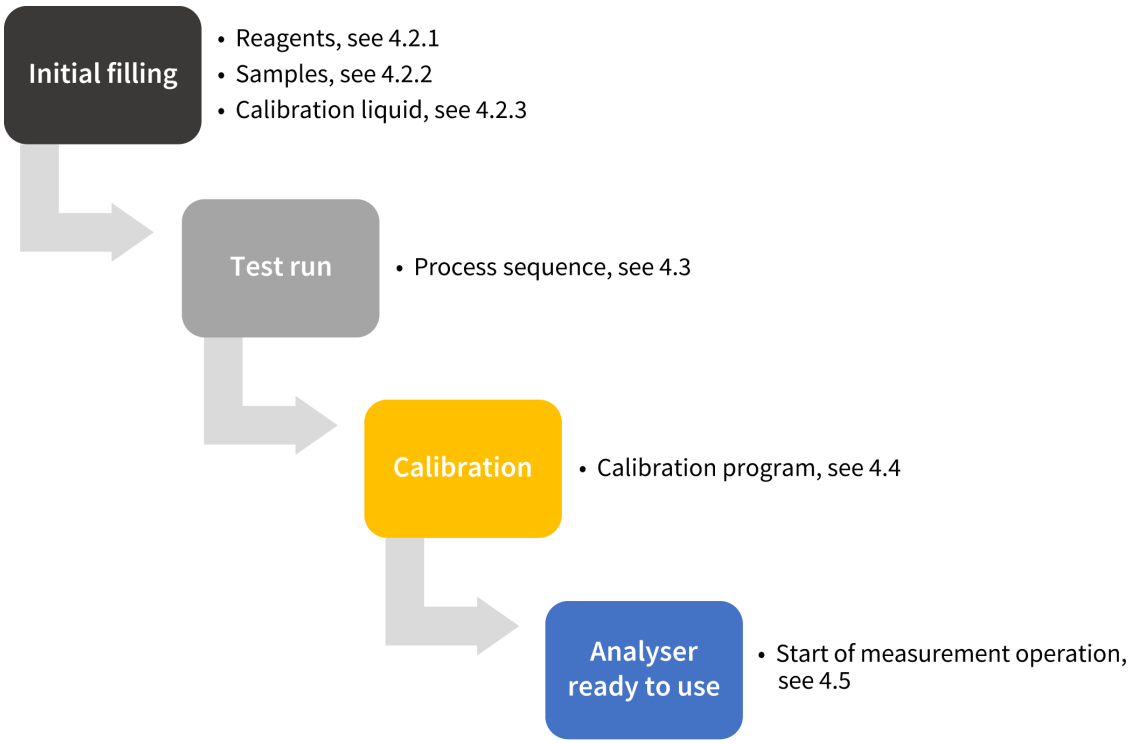
Observe personal protective measures!

4 Commissioning

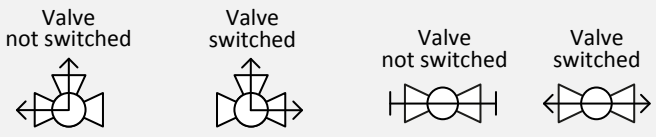
Precondition: approved and complete installation in accordance with *3 Installation*

Commissioning procedure:

1. Switch on the BlueMon, see 4.1
2. Initial filling, see 4.2
   a. Reagents supply, see 4.2.1
   b. Sample supply, see 4.2.2
   c. Calibration solution supply 4.2.3
3. Test run, see 4.3
4. Calibration, see 4.4
5. Operation start, see 4.5



Note: Switching states of the valves



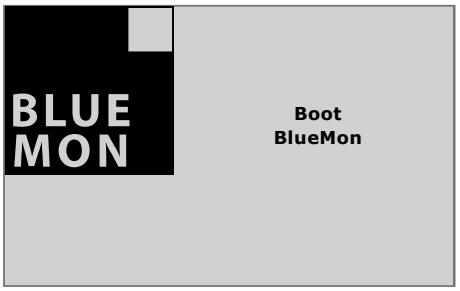
4.1 Switching On the BlueMon

Danger

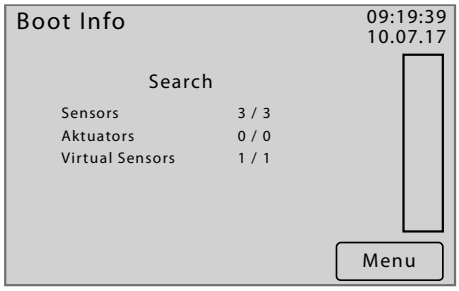
- Close the housing door.
- Blockages in the tube system can loosen tube connections. As a result, hazardous liquids may leak out.

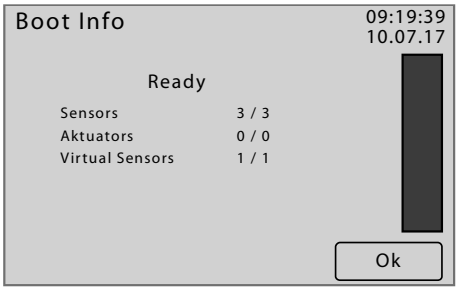
After the Blue Box has been started by switching on the power supply, the display shows following information in succession.





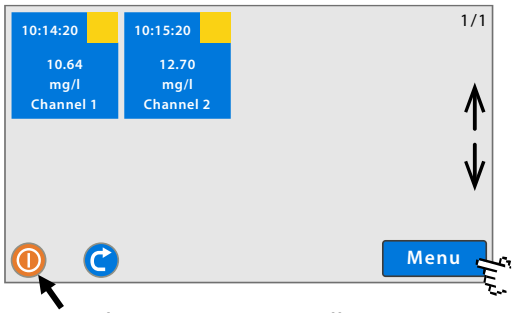
Then the BlueMon initiates the connected sensors and actuators.





Once the initialization is complete, the display shows the number of connected sensors and actuators.

After 20 seconds or after pressing <OK> the Parameter display appears.

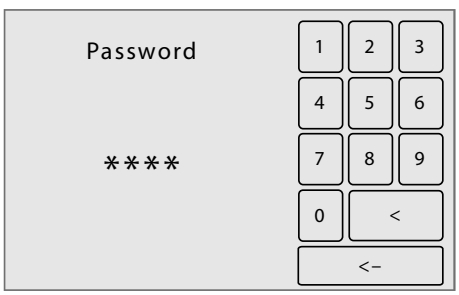


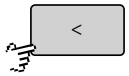
Switches to the Main menu.

Icon device status "Standby“

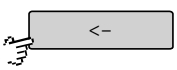
Password input

To access certain menus, a password consisting of 5 digits must be entered.
The password can be found in the configuration data sheet.
see *Appendix B – The Configuration Data Sheet* there *1. BlueMon* there *BlueMon Password (PIN)*





Deletes the last entered digit.



Verifies the password and switches forward. If the password is incorrect, you receive an error message.

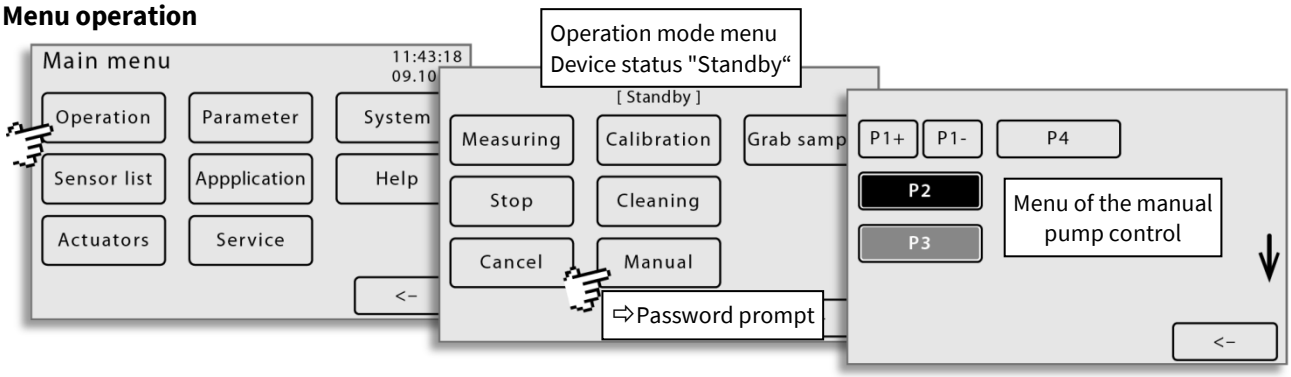
4.2 Initial Filling

4.2.1 Reagents Supply

- **Reagents** ⇨ Inlets Reduction solution and Molybdate solution
  To perform the manual initial filling of the BlueMon with reagents, start pump 2 in the menu operation until all reagents had been transported to the pump.
- (optional) **DI water** –To perform the manual initial filling of the BlueMon with DI water, start pump 3 in the menu operation until the DI water had been transported to the pump.

see also *Manual BlueMon Menu Operation* there *8.2.1.1 Manual Pump and Valve Relay Control*

Menu operation



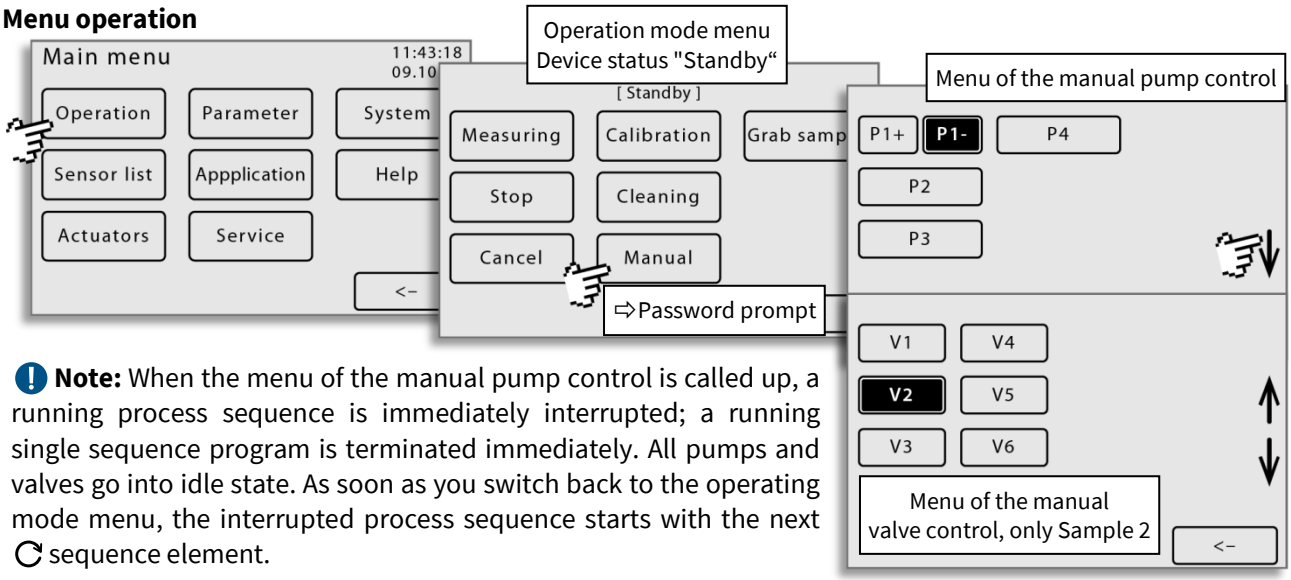
Note: When the menu of the manual pump control is called up, a running process sequence is immediately interrupted; a running single sequence program is terminated immediately. All pumps and valves go into idle state. As soon as you switch back to the operating mode menu, the interrupted process sequence starts with the next ↻ sequence element.

4.2.2 Sample Supply

- **Sample 1** – To perform the manual initial filling of the BlueMon with sample liquid 1, start pump 1 in the menu operation in counter-clockwise direction <P1-> until sample liquid 1 had been transported to the pump.
- **Sample 2** – To perform the manual initial filling of the BlueMon with sample liquid 2, start pump 1 in the menu in counter-clockwise direction <P1-> operation while valve 2 is switched, until the sample liquid had been transported to the pump.

see also *Manual BlueMon Menu Operation* there *8.2.1.1 Manual Pump and Valve Relay Control*

Menu operation

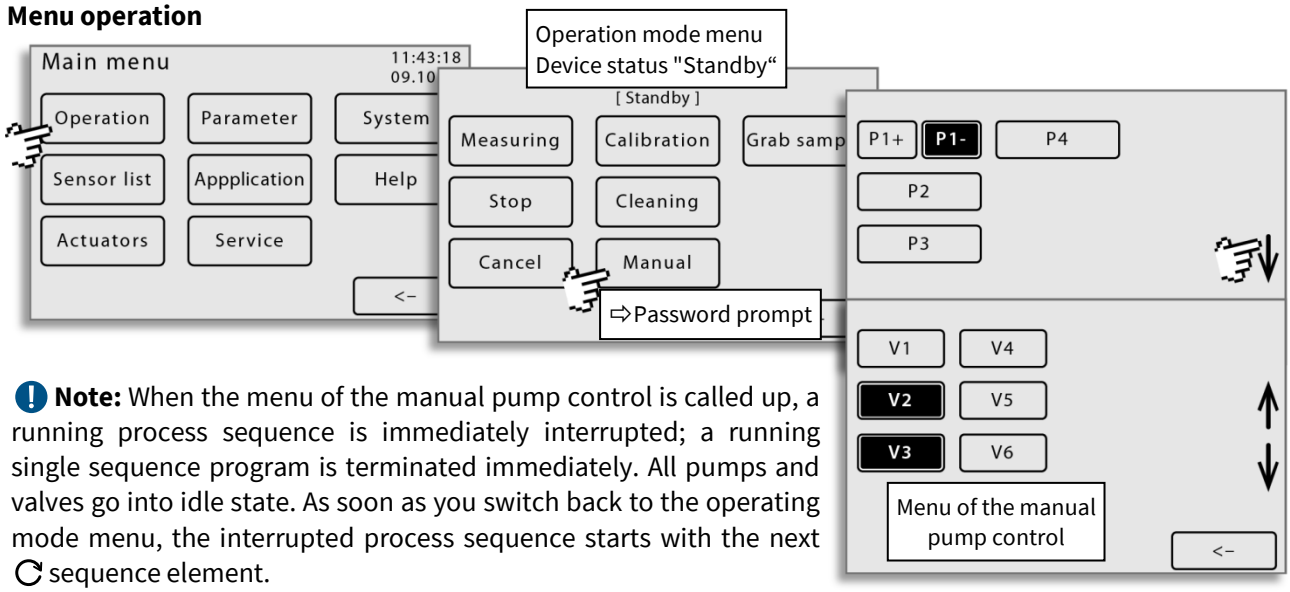


Note: When the menu of the manual pump control is called up, a running process sequence is immediately interrupted; a running single sequence program is terminated immediately. All pumps and valves go into idle state. As soon as you switch back to the operating mode menu, the interrupted process sequence starts with the next ↻ sequence element.

4.2.3 Calibration Solution Supply

- **Phosphate-P standard** ⇨ Inlet Calibration standard (Calibrant)
  To perform the manual initial filling of the BlueMon with calibration liquid, start pump 1 in the menu operation in counter-clockwise direction <P1-> while valve 2 and valve 3 are switched until the calibration liquid had been transported to the valve connections at the tube connector slots.

Menu operation



Note: When the menu of the manual pump control is called up, a running process sequence is immediately interrupted; a running single sequence program is terminated immediately. All pumps and valves go into idle state. As soon as you switch back to the operating mode menu, the interrupted process sequence starts with the next sequence element.

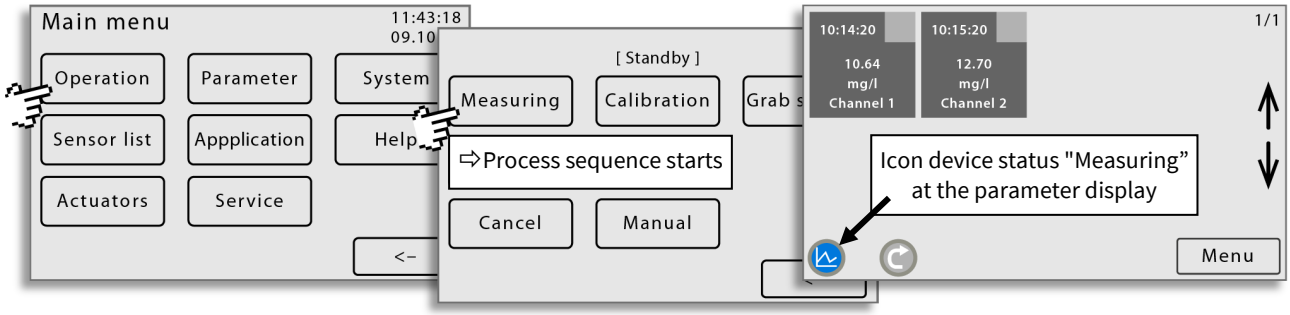
4.3 Test Run

For an optimal functioning of the pumps and the solution flow in the tubing, a test run of the process sequence is recommended.

After the initial filling of all liquids, the process sequence can be started.

- Start the process sequence with button <Measuring>.
  The duration of the process sequence is about 15 minutes.

Menu operation



The device activity and the device status of the BlueMon are displayed in the menus: Parameter display 1-way, Parameter display 6-way, Measurement overview, Operating mode menu. There in each case in the middle in the top.
see *Manual BlueMon Menu Operation* there *Appendix D – Display of the Device Activity and the Device Status*

Automatic analysis sequence: The process sequence and the operating parameters of the BlueMon are factory set. The measured values of the sample lines and of the virtual (calculated) sensors* are displayed in the parameter display after their first recording.

* and the possibly connected external CAN-bus sensors

4.4 Calibration

Precondition: The BlueMon is in the device status Standby.
⇨Display [Standby] in the Operation mode menu (see below)

Procedure: Start the Phosphate-P standard calibration with the button <Cal PO4-P>.

a. The calibration program starts; the program duration is about 15 minutes.
⇨Display [Cal PO4-P] in the Operation mode menu (see below)

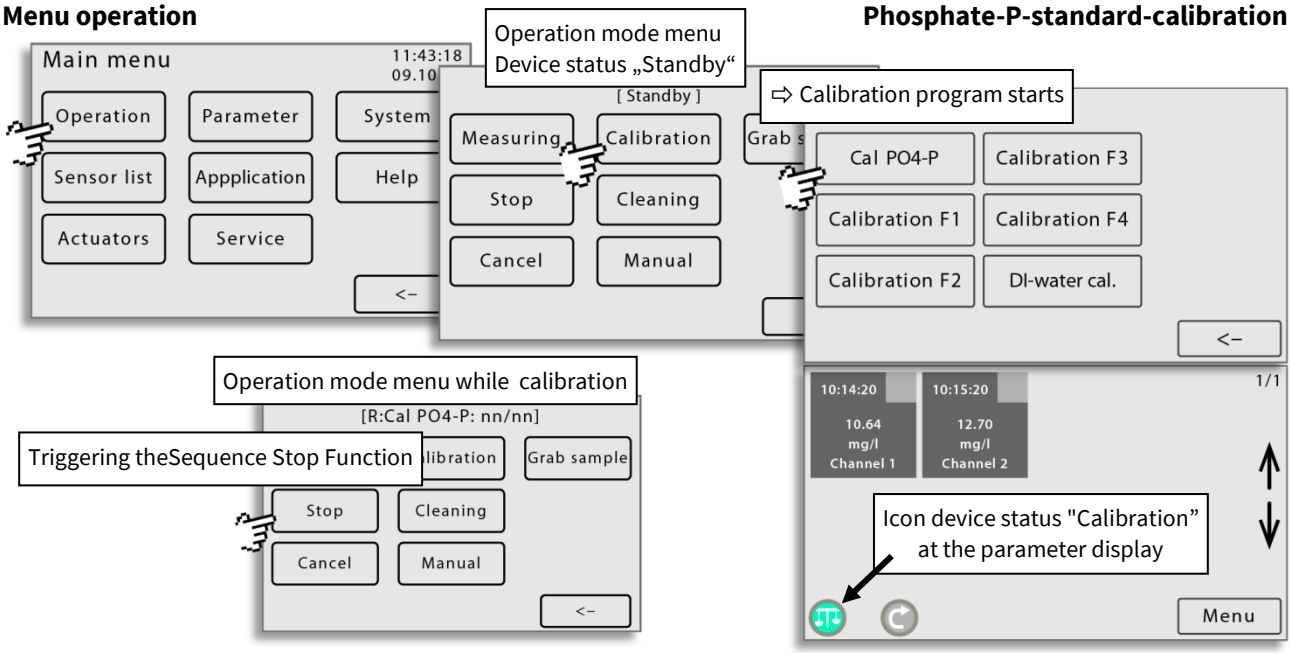
b. Switch back to the operating mode menu by pressing the button <- for several times.

c. Press the <Stop> button to trigger the sequence stop function.
The calibration program runs to the end.

d. Wait until the calibration program is finished. ⇨ Device status Standby

Note: Do not perform any further operation after the Sequence Stop Function has been triggered (c. see above).

Menu operation **Phosphate-P-standard-calibration**

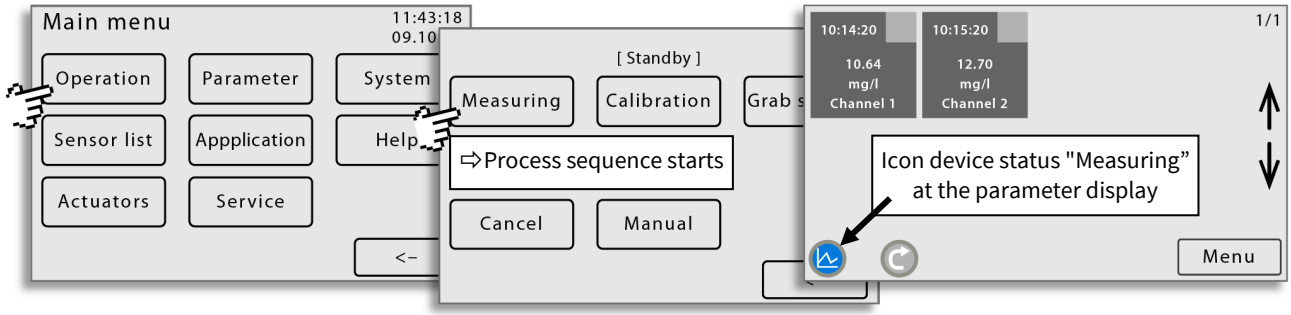


4.5 Operation Start

After the calibration, the process sequence can be started via the operation menu.

- Start the process sequence with the button <Measuring>.
  The duration of the process sequence is about 15 minutes.

Menu operation

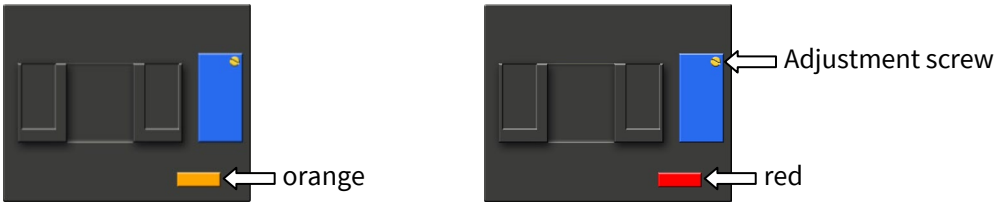


Automatic analysis sequence: The process sequence and the operating parameters of the BlueMon are factory set. In normal operation no changes at the BlueMon is necessary until the next maintenance.

4.6 Notes on the Bubble Detector (Liquid Detector)

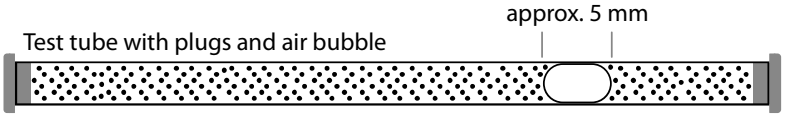
The bubble detector detects air bubbles in tubes, i.e. a general lack of liquid. The bubble detector is tested and adjusted on delivery. In certain conditions (e.g. deposits in the tube, exposure to heat, etc.) a reset may be necessary.

- The function lamp lights **orange** if **no bubble** is detected.
- The function lamp lights **red** when **a bubble** is detected.
- The function lamp does **not** light up if **no light** is detected.



The sensitivity of the bubble detector is adjusted with the adjustment screw (see above) in standby mode.
The adjustment screw operates a potentiometer. Turning to the left increases the sensitivity, turning to the right decreases the sensitivity.

The expected maximum rotation angle range is ± 45°, even ± 90° would be very unusual.[*]



The sensitivity is tested with a test tube: Move the air bubble through the measuring section, if the air bubble is in the measuring path, the function lamp must light red, otherwise orange.

For further information see *Manual BlueMon Menu Operation* there *8.2.5.6 Liquid Detector*

[*] Depending on the version of the potentiometer actuated with the adjusting screw, the setting range is 15 to 20 rotations. A slight clicking noise is noticeable when the end stop jumps over. It is not possible to overturn the potentiometer.

5 Decommissioning

I f you want to shut down the BlueMon for a long time, proceed as follow:

1. Stop the program sequence with <Menu> Main menu ⇨ <Operation> ⇨ <Stop>
   Each running program is executed to the end and the system is then stopped.
   The system will then go to "Standby" status.

2. Interrupt the supply of chemicals.

3. Immerse the sample tube(s) in DI water.

4. Let the cleaning program run at least 3 times.

5. Remove the tubes of the chemical canisters.

6. Immerse all tubes from the chemical canisters in DI water.
   Start with <Menu> Main menu ⇨ <Operation> ⇨ <Manual> all pumps by pushing the appropriate pump button. Flush the BlueMon for about half an hour.

7. Remove the dip tubes from the DI water so that the pumps pump air. Let the pumps pump for as long as necessary until the whole device is completely emptied

8. Leave the pump menu.

9. Turn off the BlueMon by pulling the power plug.

10. If the BlueMon shall be transported, mount the transportation locks.



Note necessary protective measures! see safety data sheet

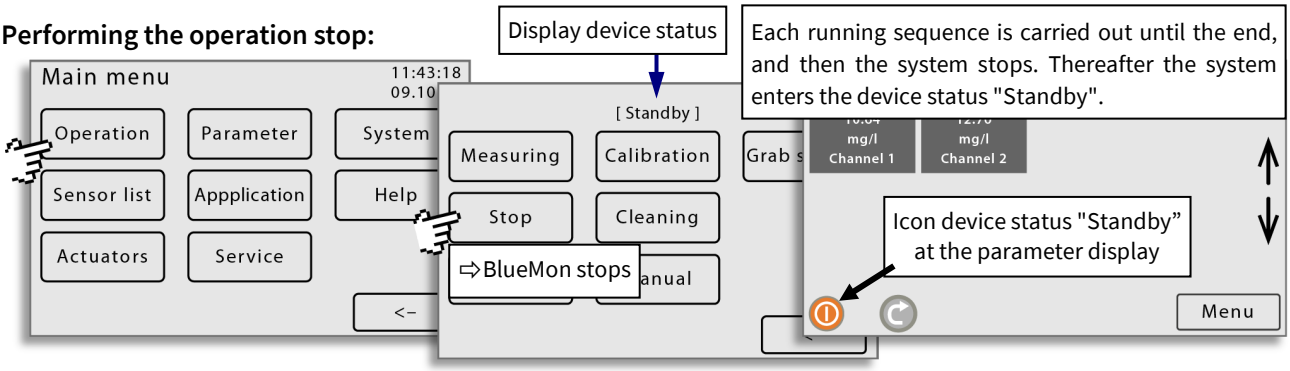


Observe personal protective measures!

6 Maintenance

Danger: Stop any operation before opening the housing door.

Performing the operation stop:



Note necessary protective measures! see safety data sheet

Observe personal protective measures!

6.1 Changing Chemicals

You will receive the necessary reagents and calibration liquids (see 2.12) from GO Systemelektronik. To change the chemicals you have to stop the process sequence and replace the chemicals canisters after the BlueMon had stopped.

After a successful change, feed the chemicals manually (as in *4.2 Initial Filling*).

After a reagent change, a calibration is required.

6.2 Changing Tubes and Tube Connectors

You need the consumables set (see 2.10) from GO Systemelektronik.

Before changing tubes and tube connectors, put all suction tubing in DI water. Start the cleaning sequence via <Menu> Main menu ⇨ <Operation> ⇨ <Cleaning>.

At the end of the cleaning program, remove the tubes from the DI water.

Start via <Menu> Main menu ⇨ <Operation> ⇨ <Manual> all pumps so that air is pumped. Let the pumps pump until the entire unit is completely drained. Tube changing at pump head see 7 and 7.1

6.3 Cleaning (manual)

GO Systemelektronik recommends regular cleaning of the BlueMon. Cleaning must be carried out at the latest after underrunning/overrunning of the minimum/maximum values of the calibration factors.

To remove reaction residues, you can use cleaning liquid (min. 100 ml) and feed it via the sample feeder.

After a residence time of 30 minutes of the cleaning liquid, the system must be emptied via the drain valves. Then repeat this procedure with DI water to rinse the system.

6.4 Maintenance Intervals

- **Change reagents every 3 months**
- **Replace tubing every 6 months**

6.5 Notes on the Sample Heating

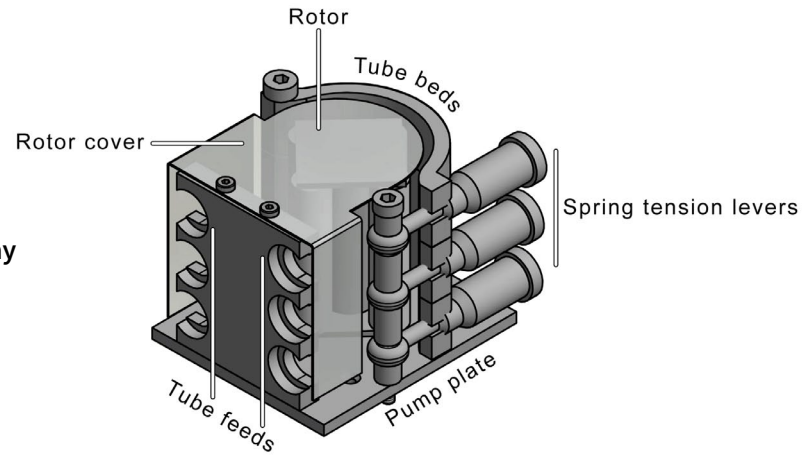
Warning: There may be aggressive and hot liquids in the sample heating. Make sure that the sample heating is emptied and cooled down during maintenance.

7 Tube Changing at the Pump Head

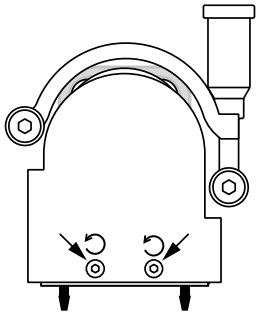
Note necessary protective measures! see safety data sheet
Warning: Only perform this when the pump is not running.
Preparation according to *6.2 Changing Tubes and Tube Connectors*

A pump head can be mounted with 1 to 3 tubes. The tubes are placed on the rotor with the tube beds.

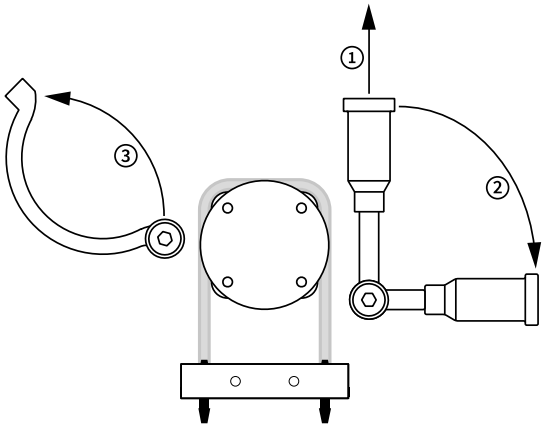
Example: pump head 3-way



Observe personal protective measures!



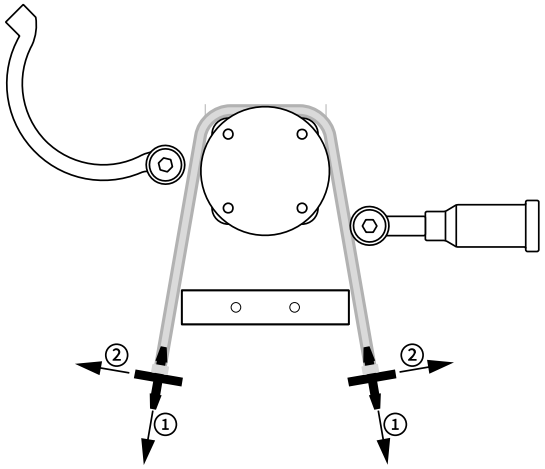
Unfasten the mounting screws
(Hex socket ⎔ 2.5 mm) of the rotor cover.
Remove the rotor cover.



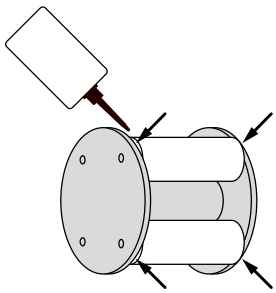
Pull each lever out of the groove of the tubing beds (1) and turn the levers to the side (2).
Turn the tubing beds to the side (3).

Pull the tube connectors downwards out of the fitting in the tubing holder (1) and then turn the tubing ends to the side (2).
Remove the tubing.

Insert the new tubing in the reverse order.



7.1 Oiling the Pump Roller Axles



It is recommended to oil the axles of the pump rollers at each tube changing.

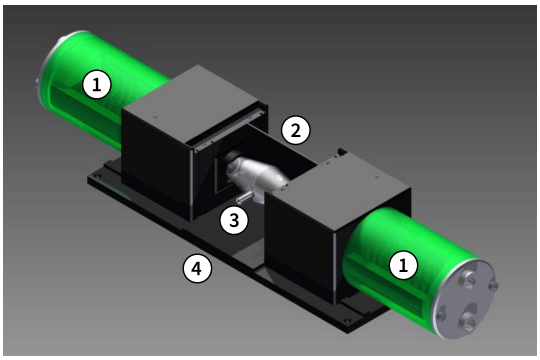
Carefully and sparingly apply some sewing machine oil to the area between the circular surfaces of the pump rollers and the pump rotor.
Turn the pump rollers to spread the oil.

8 Replacement of the Cuvette on the Photometer and Spectralphotometer

It is usually not necessary to remove and install the glass cuvette, but it may happen that the cuvette is damaged when the cuvette tubes are removed in the course of a tube exchange. It is also possible that the cuvette may have to be removed for cleaning due to unusual sample contamination.

Note necessary protective measures! see safety data sheet

1 Photometer setup



① Cuvette holders

② Side cover

③ Cuvette

④ Base plate

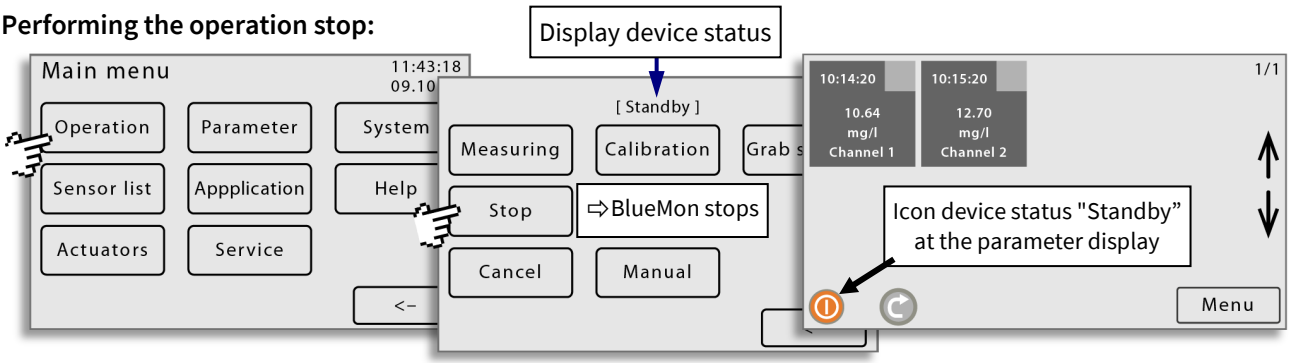
2 Preparation

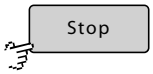
Note: Cleaning should be carried out as required.

Danger: All operation must be stopped before opening the housing door.

Danger: Empty the photometer and the connected components completely.

Performing the operation stop:



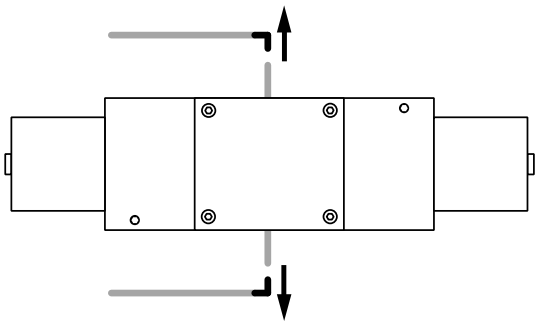


Each running sequence is carried out until the end, and then the system stops. Thereafter the system enters the device status "Standby".

Required tools:

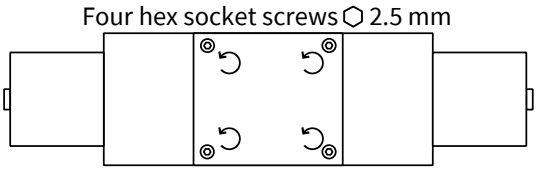
- Hex socket wrench 2.5 mm for the four socket screws of the photometer housing cover
- Hex socket wrench 1.5 mm for the two headless socket screws of the cuvette holders

Remove tube connection:
The photometer is located at the top in the middle on the device plate of the BlueMon analyser.
Remove the connecting tubes from the cuvette tubes.

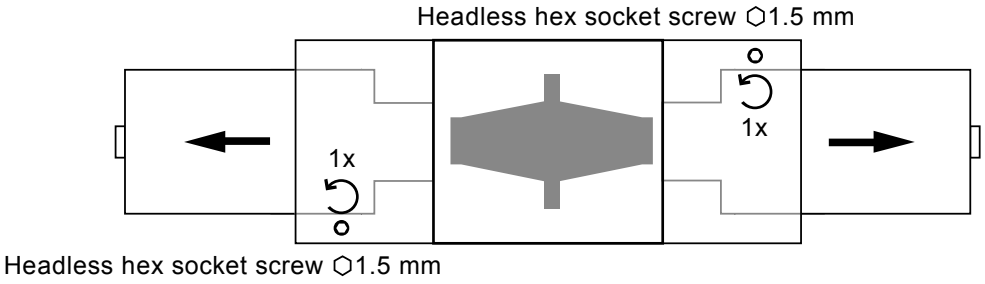


3 Cuvette dismounting

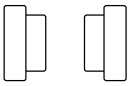
Opening the photometer housing
Use the 2.5 mm hex socket wrench to remove the four hex socket screws of the photometer housing cover.
Remove the photometer housing cover.



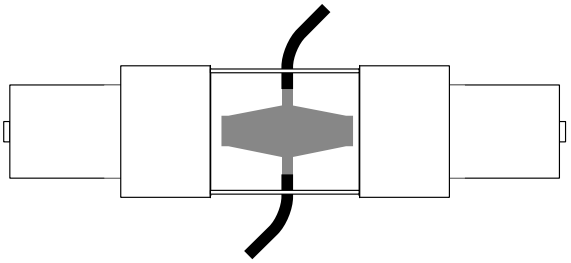
Pull out the cuvette holders: Use the 1.5 mm hex socket wrench to turn each headless hex socket screw one turn to the left. Carefully pull out the cuvette holders until the cuvette is unlocked.
Here as an example is the 50 mm barrel cuvette without small cuvette adapters.



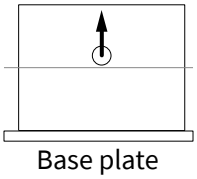
Note: For cuvettes in the size from 1 mm to 5 mm, small cuvette adapter are installed.
If necessary, reinstall these after exchanging the cuvettes.



Pull out the cuvette with the two side covers:
Pull out the cuvette with the cuvette tubes and side covers.
Carefully ⚠ separate the cuvette, the tubes and the side covers.



Note that both side covers are not symmetrical!



Caution: The properties of the optical surfaces of the cuvette must not be changed, e. g. avoid touching them by hand





Observe personal protective measures!

4 Cuvette mounting

The mounting of the new or cleaned cuvette is done in reverse order to the removal of the cuvette.

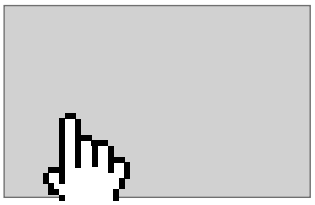
Appendix A – Adjustment of the Touch Display

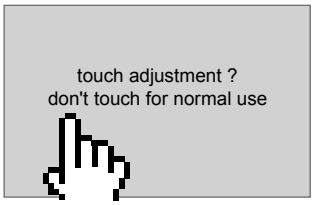
If the display does not respond correctly or only under high pressure, a display adjustment is necessary.

While switching on power, press display until the notice

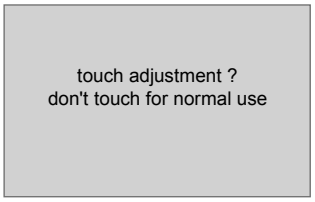
"touch adjustment ?
don't touch for normal use"

appears.

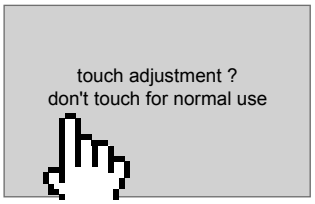




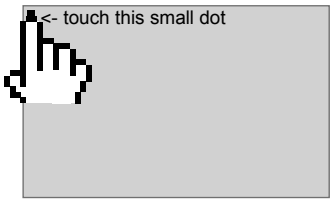
Left off the display immediately!



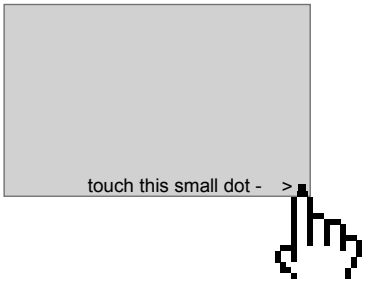
Press the display immediately again for more than one second.



A blinking dot appears at top left.
Press the blinking dot top left.



A blinking dot appears at bottom right.
Press the blinking dot bottom right.

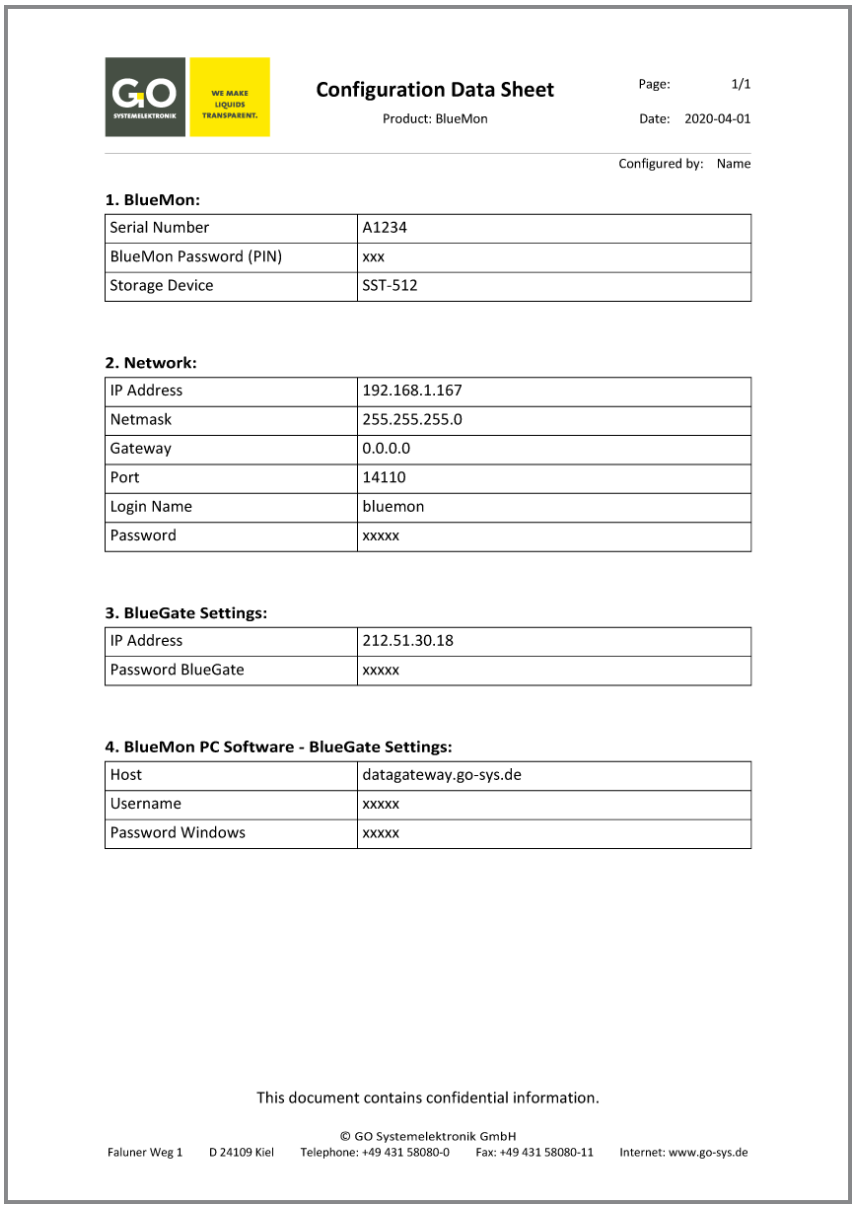


The adjustment is finished.

Appendix B – The Configuration Data Sheet

The configuration data sheet contains the passwords, network addresses etc. necessary for operating the BlueMon.

Example:



Configuration Data Sheet

Page: 1/1

Product: BlueMon

Date: 2020-04-01

Configured by: Name

1. BlueMon:

Serial Number	A1234
BlueMon Password (PIN)	xxx
Storage Device	SST-512

2. Network:

IP Address	192.168.1.167
Netmask	255.255.255.0
Gateway	0.0.0.0
Port	14110
Login Name	bluemon
Password	xxxxx

3. BlueGate Settings:

IP Address	212.51.30.18
Password BlueGate	xxxxx

4. BlueMon PC Software - BlueGate Settings:

Host	datagateway.go-sys.de
Username	xxxxx
Password Windows	xxxxx

This document contains confidential information.

© GO Systemelektronik GmbH

Faluner Weg 1 D 24109 Kiel Telephone: +49 431 58080-0 Fax: +49 431 58080-11 Internet: www.go-sys.de

1. BlueMon:

Serial Number	A1234
BlueMon Password (PIN)	xxxxx
Storage Device	SST-512

Serial Number

Serial number of the BlueMon
With this serial number the BlueMon is identified by the BlueMon PC Software.
⇨ set at the factory, not changeable

BlueMon Password (PIN)

Password of the BlueMon
Is required to change the BlueMon system settings.
⇨ set at the factory, not changeable

Storage Device

Model and size of the internal BlueMon memory, here SST-512 (SST= SST NANDrive™; 512=512MB)
⇨ set at the factory, changeable by replacing

2. Network:

IP Address	192.168.1.167
Netmask	255.255.255.0
Gateway	0.0.0.0
Port	14110
Login Name	bluemon
Password	xxxxx

IP Address IP address of the BlueMon
At this address, the BlueMon is addressed on the network.
⇨ set at the factory, changeable

Netmask Netmask of the BlueMon
⇨ set at the factory, changeable

Gateway Standard gateway of the BlueMon
⇨ set at the factory, changeable

Port Default gateway of the BlueMon
⇨ set at the factory, not changeable

Login Name User name for a modem connection
⇨ set at the factory, not changeable

Password Network password of the BlueMon
Is needed to access the BlueMon via the BlueMon PC Software.
⇨ set at the factory, not changeable

3. BlueGate Settings:

IP Address	212.51.30.18[1]
Password BlueGate	xxxxx

IP Address IP address of an Internet Gateway
⇨ can be configured at the factory, changeable[2]

Password BlueGate Password of an Internet Gateway
⇨ can be configured at the factory, changeable

4. BlueMon PC Software – BlueGate Settings:

Host	datagateway.go-sys.de
Username	xxxxx
Password Windows	xxxxx

If the BlueMon is accessed via a gateway (e.g. with an UMTS connection), you have to enter these access data in the BlueMon PC Software.

[1] IP address of the GO webserver (default address)
[2] changeable only at the default address

Appendix C – Maintenance Protocol

☐ Ammonium ☐ Chlorine ☐ Fluoride ☐ Nitrate ☐ Phosphate

Month/Year _____

Measurement component: _____ Measurement range: _____

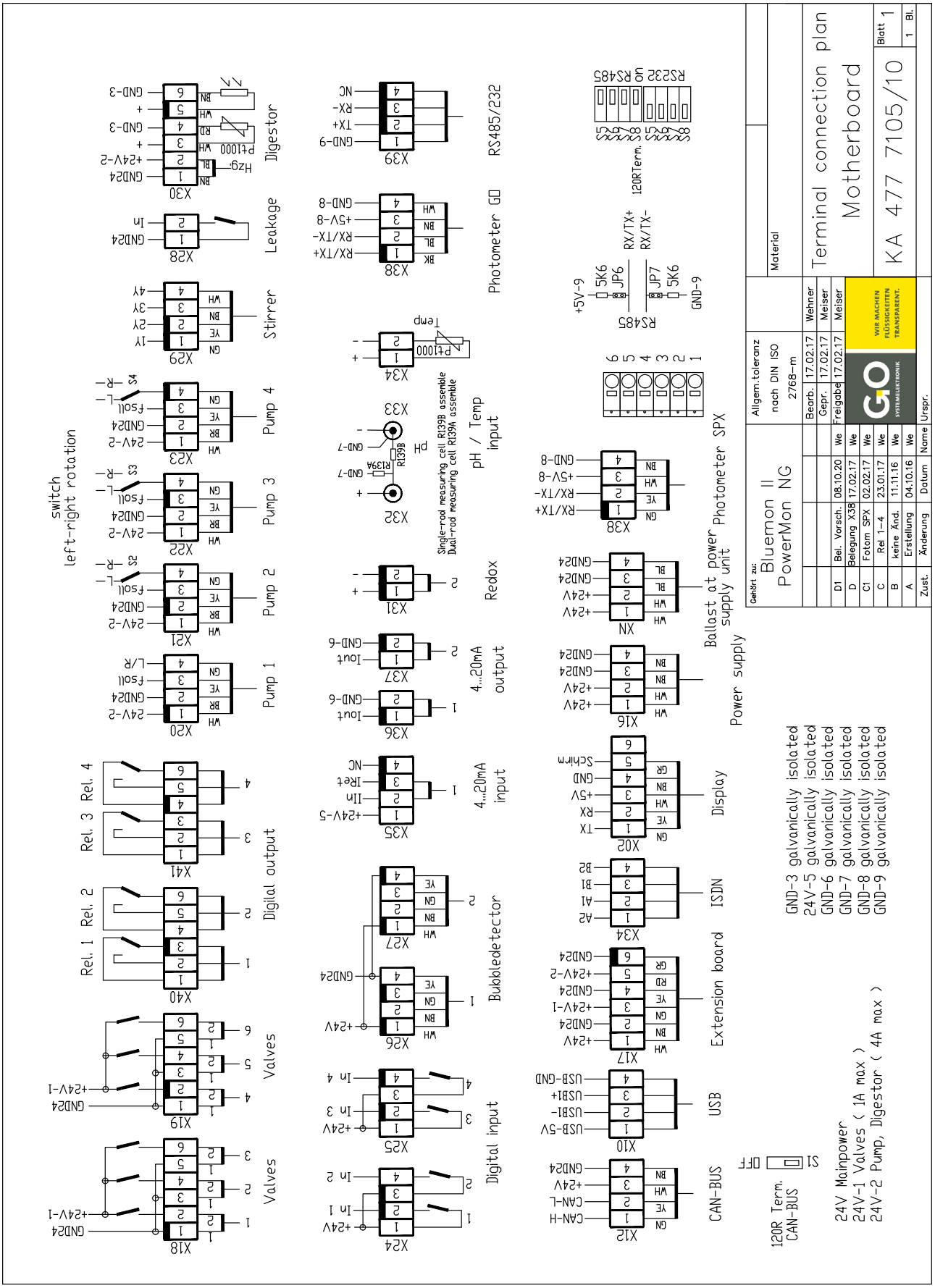
Device in operation since: _____

Performed maintenance works:

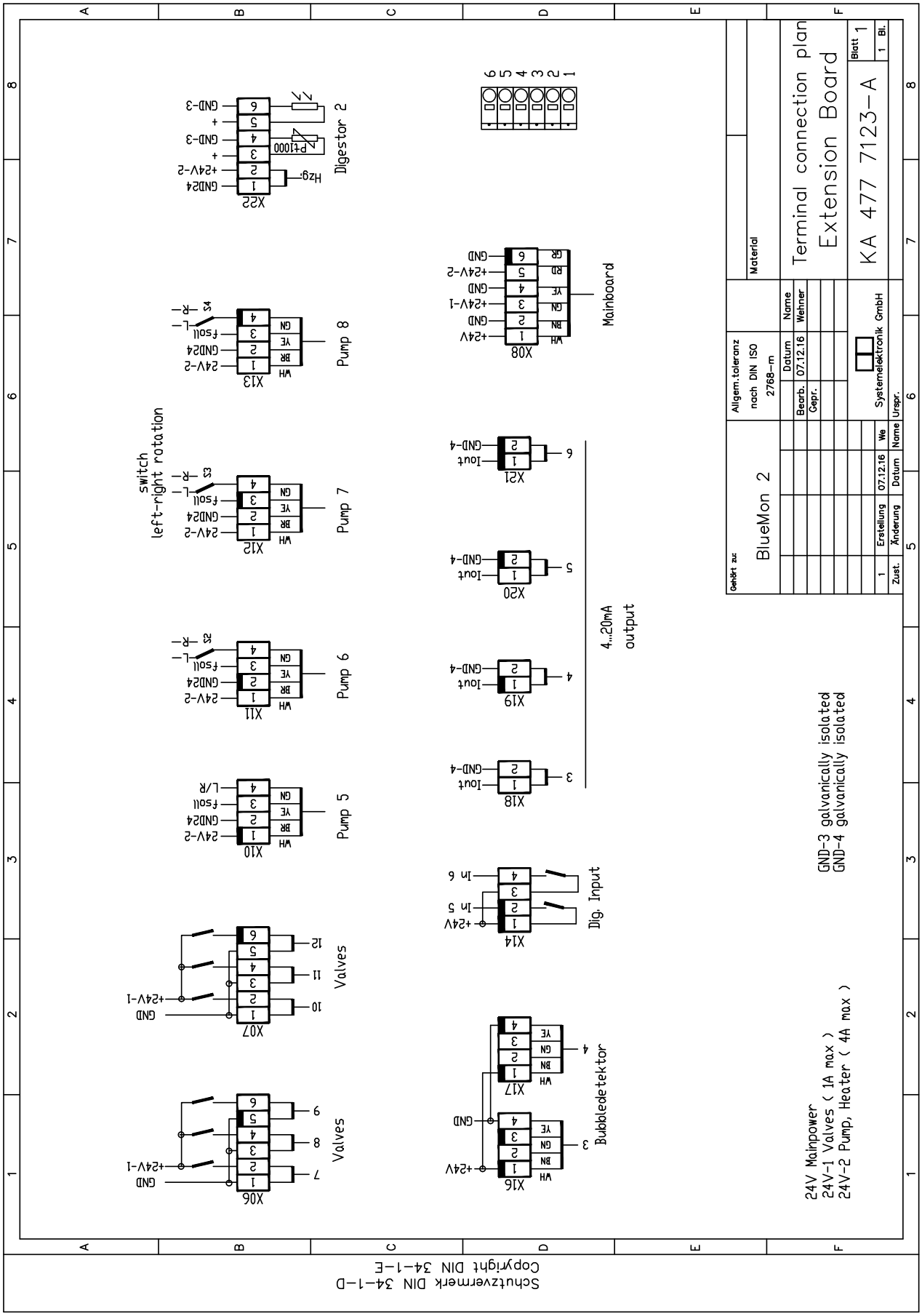
Daily					Weekly
Date	Time	Visual inspection	Remark	Signature	
		☐ OK			☐ Reagent stock OK ☐ Leakage detectetor checked Date: Signature:
		☐ OK			
		☐ OK			
		☐ OK			
		☐ OK			
		☐ OK			
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		☐ OK			
		☐ OK			
		☐ OK			
		☐ OK			
		☐ OK			
		☐ OK			

Every three months	Every six months
☐ Valves checked ☐ Hose holder checked ☐ Hose system, cuvette/measurement cell checked ☐ Calibration factors checked ☐ Electrodes (if existing) checked ☐ Chemicals changed ☐ Multi pump hoses shifted Date: Signature:	☐ Hoses renewed Date: Signature: **Annual** GO Systemelektronik service personnel: ☐ Cuvette cleaned ☐ Electrodes (if existing) maintained ☐ Seals and O-rings renewed Date: Signature:

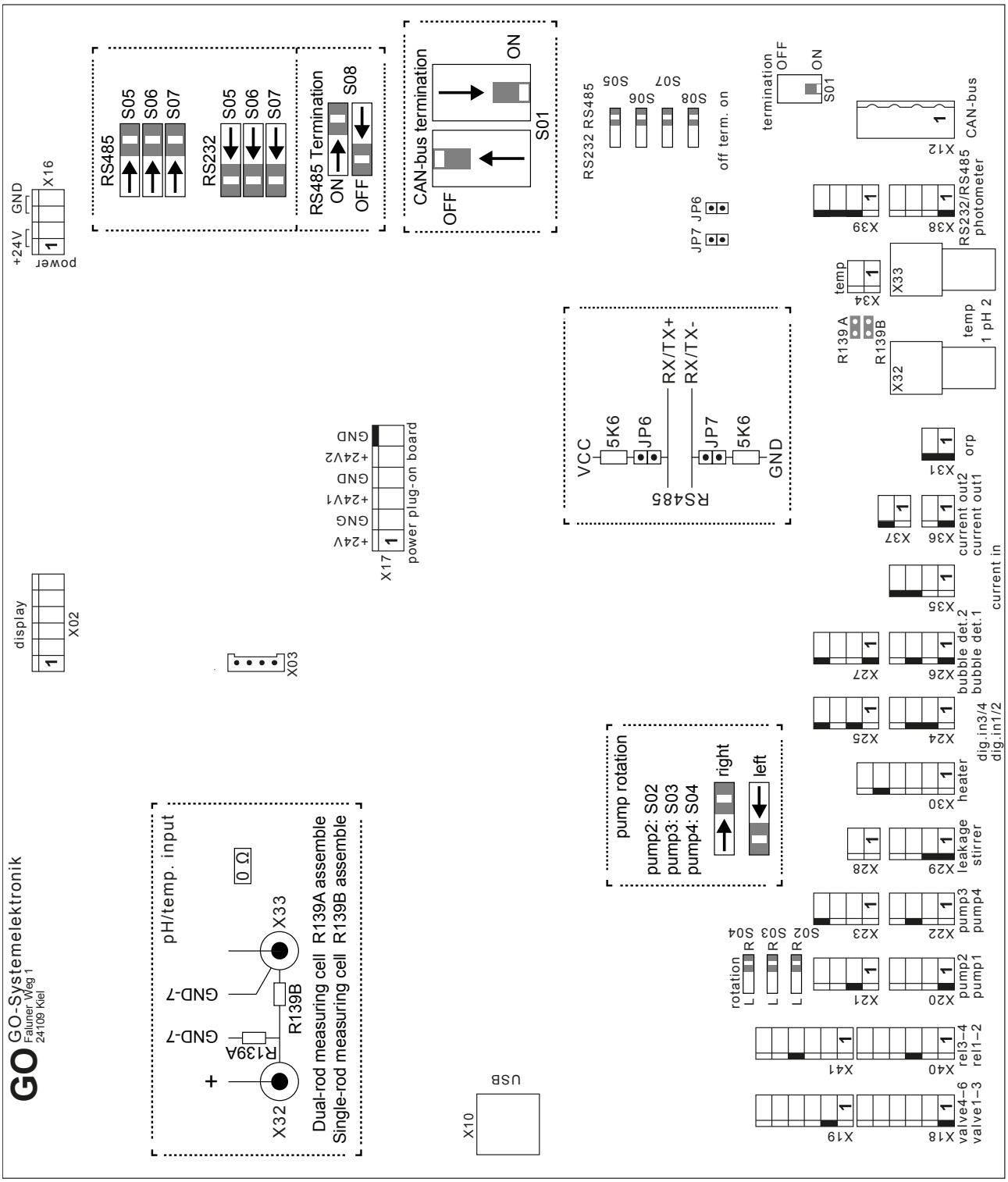
Appendix D – Connection Diagram of the Mainboard



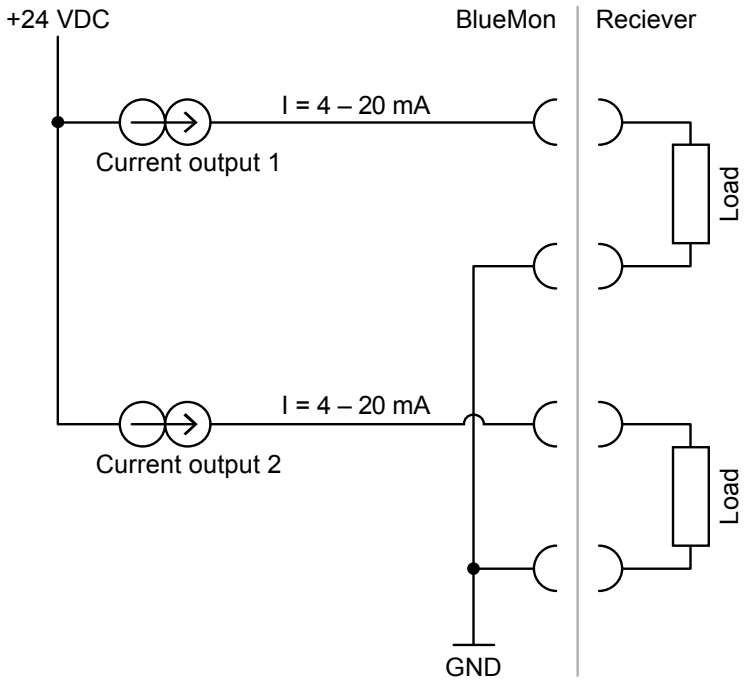
Appendix E – Connection Diagram of the Plug-on Board (optional)



Appendix F – Configuration of the Mainboard



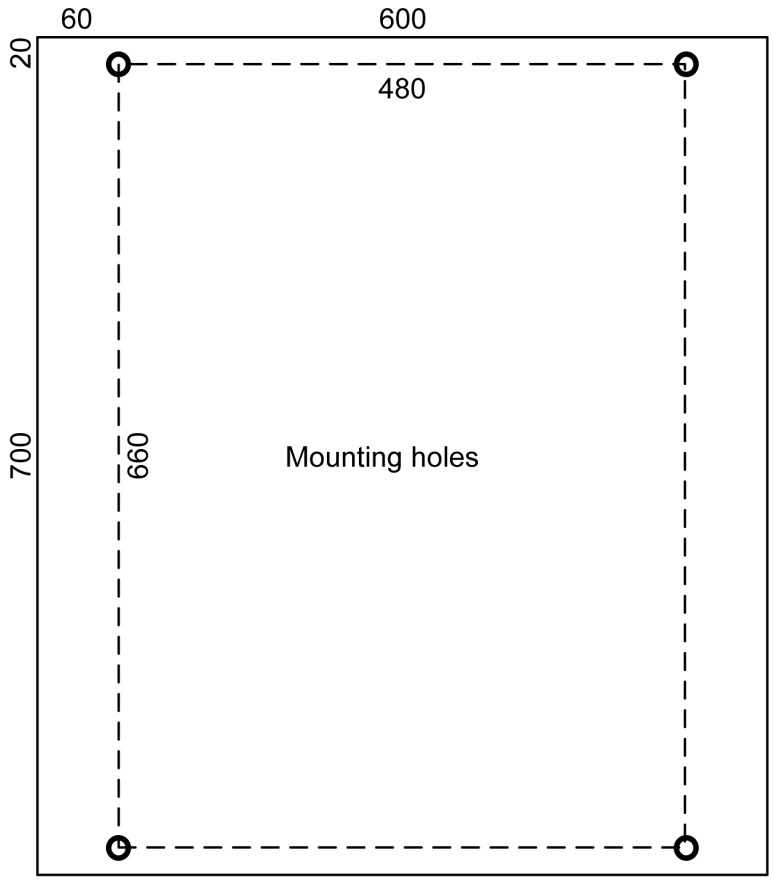
Appendix G – Connection Diagram of the Current Outputs



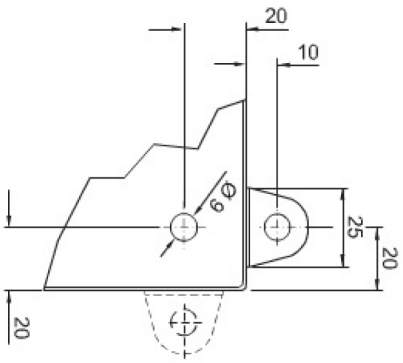
Note: In difference to the BlueBox* the two current outputs of the BlueMon are galvanically isolated from the other connections, but not from each other.

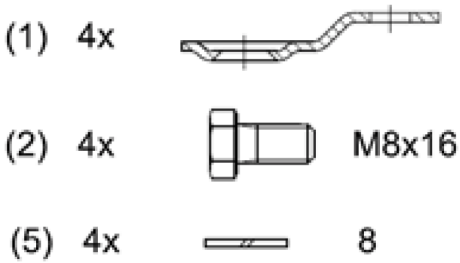
* The BlueBox from GO Systemelektronik is the central element of the BlueBox system. The BlueBox system is a modular measurement and control system.

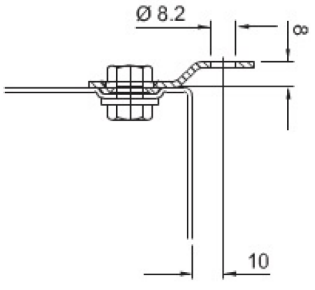
Appendix H – Device Mounting (large housing)

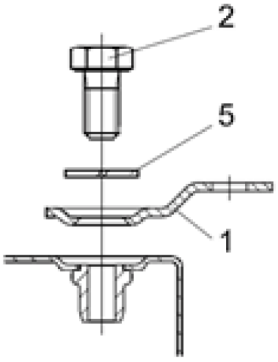


In each mounting hole a rotatable wall bracket is screwed.









All dimensions in mm

Appendix I – EU Declaration of Conformity

EU-Konformitätserklärung
EU Declaration of Conformity

Hersteller: ***Manufacturer:***	GO Systemelektronik GmbH Faluner Weg 1 24109 Kiel Germany

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
The sole responsibility for issuing this EU declaration of conformity is carried by the manufacturer.

Gegenstand dieser Erklärung: ***Subject to this declaration:***	BlueMon Analysator *BlueMon Analyser*
Artikelnummer: ***Article No.:***	488 XXXX

Typenschild des Produktes:
Type plate of the product:

Type : BlueMon xxxxxxx CE
GO Systemelektronik Art. No.: 488 XXXX
Ident.Article No.: 488 XXXX
Serial Number: BMXXXX

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsvorschriften der Union.
The subject matter described above fulfills the relevant harmonization rules of the Union.

Zugrunde liegende harmonisierte Normen:
Underlying harmonized standards:

1.	DIN EN 61000-6-3:2011	Störaussendung	*Interference emission*
2.	DIN EN 61000-6-1:2007	Störfestigkeit	*Interference resistance*

(Falls zutreffend) **Gemäß den Bestimmungen der Richtlinie/den Dokumenten:**
(If applicable) ***Following the provision of directive/the documents:***

1.	DIN EN 62368-1	Niederspannungsrichtlinie	*Low voltage directive*
2.	Fertigungsanleitung BlueMon Analysator *Manufacturing instruction BlueMon Analyser*	488 XXXX *488 XXXX*	
3.	Fertigungsanleitung Aufbau, Verdrahtung und Verschlauchung incl. Grundbestückung *Manufacturing instruction, assembly, wiring and tubing incl. basic equipping*	442 0060 *442 0060*	
4.	Prüfanleitung BlueMon Analysator *Test instruction BlueMon Analyser*	QM 50 5110 *QM 50 5110*	
5.	Bedienungsanleitung BlueMon Inbetriebnahme und Wartung *Manual BlueMon Commissioning and Maintenance*		

Kiel, 4.3.2022
Ort, Datum der Ausstellung
Place, date of issue

Dr. Thorsten Knutz
Geschäftsführer *Managing director*

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