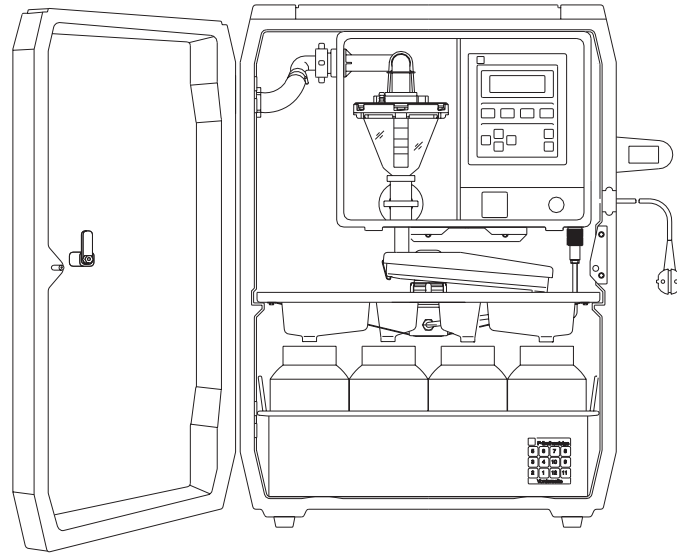
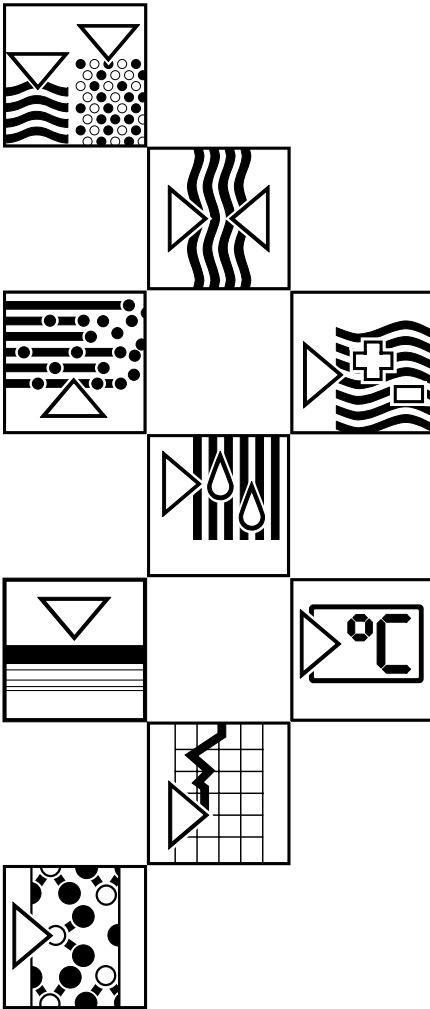


Multi-function water sampler *asp-port d 2*

Installation and operating instructions



- Check: That the delivery note and delivery contents correspond!
Check the package and contents for external damage.

Complete delivery

Should there be any visible damage you should immediately inform both the transport agency as well as your supplier. If this is not done any later claims cannot be handled under the guarantee.

Transport insurance**Please take note of the following characters:**

Hint: Hints for better installation.



Attention: Ignoring this note can lead to damage of the device or faulty operation.



Danger: Ignoring this warning can lead to personal injury.



Should the "**asp-port d 2**" be in storage for more than 6 months please take note of the storage details in chapter "**Maintenance, general**".

**Please enter details here:**

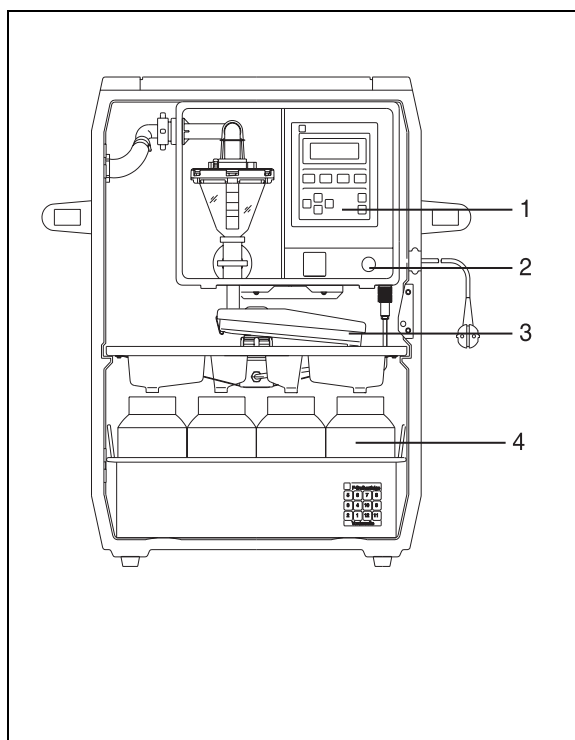
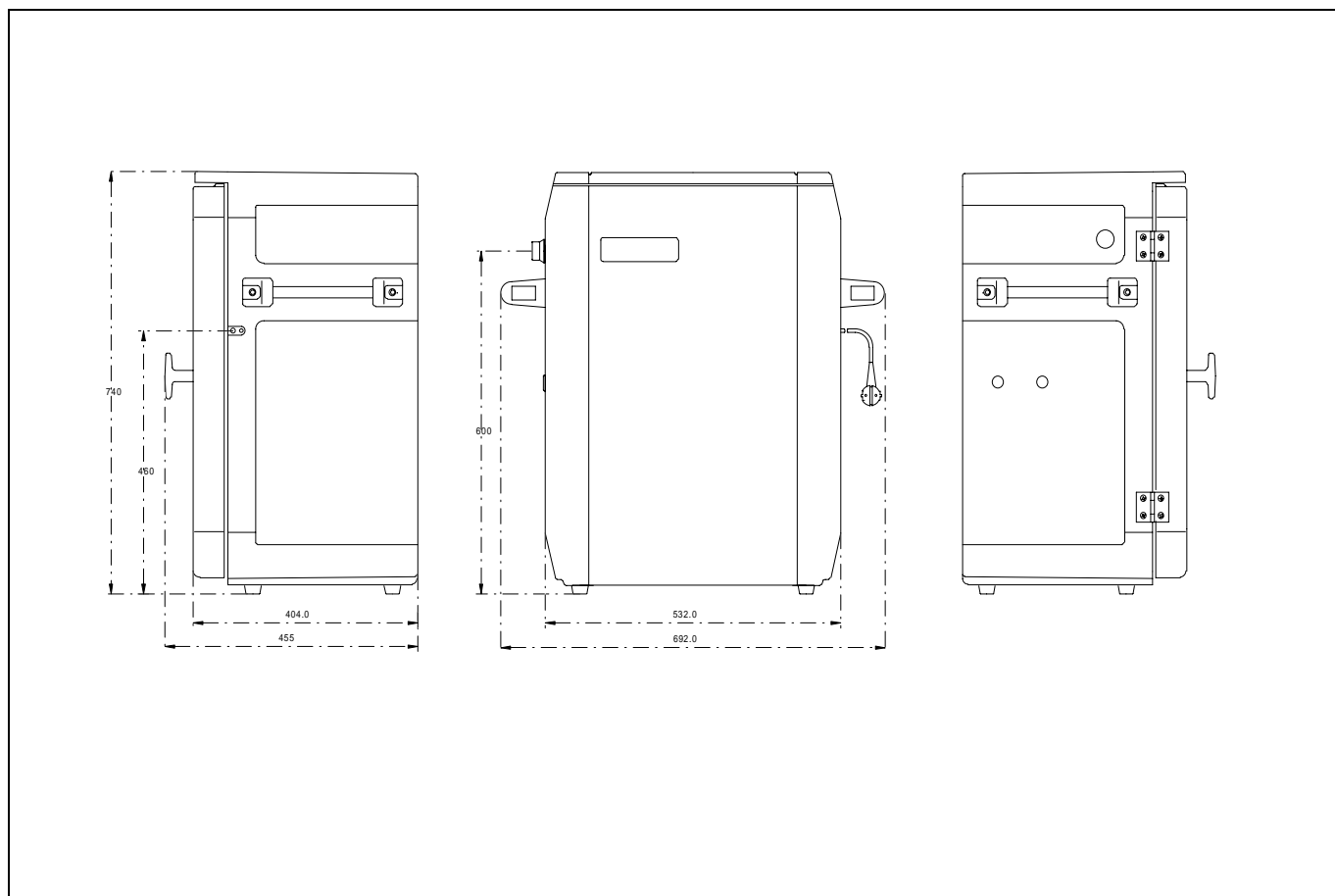
Unit number: _____

Software version: _____

Door key number: _____

.... Always give these details when reordering or on any queries.

**Dimensional drawing,
complete unit**



Sampler *asp-port d 2* :

- 1 = Controller *liqui-box d 2*
- 2 = Cable entry
- 3 = Distribution system (tap, tray)
- 4 = Bottle tray with bottles and lids

	Page	Contents
Please note:		
- Complete delivery	1	
- Transport insurance	1	
- Enter unit information	1	
	1	
asp-port d 2		
- Dimensional drawing and complete construction	2	
Contents	3	
General notes	5	
- Safety	5	
Mechanical installation	6	
- General	6	
- Installation	6	
- Hose connection / installation	6	
Electrical installation	7	
- Power supply	7	
- In and outputs	8	
- Outputs	8	
- Inputs	9	
- Control input	9	
- Connection examples	9	
- Input	9	
- What happens on power up ?	10	
- Power failures	10	
- Switching on and off (ON/OFF push buttons)	10	
Sampling principle	11	
For first installation	12	
Setting up sample volume	14	
- Setting up steps (1 to 7)	14	
Maintenance	17	
- General	17	
- Repairs	17	

	Page
Operating and display components	18
- General	18
- Operating components	19
- Setting up principle	19
- Short form instructions	20
- Programme selection and information	21
- Base settings	23
- Programmes: Creating and changeover	25
- Start/stop operation	27
- Service level	29
- Operator settings	31
Changing analogue input	34
Sample distribution conversion	35
- Changing number of containers/bottles	35
Problems and solutions	36
- Fault messages	36
- Spare parts	37
Technical data	38

This unit is constructed and tested according to EN 61010-1 / VDE 0411 Part 1 and left our works in perfect and safe condition. In order to maintain this condition and operate safely the user must take note of the following safety information and warnings contained in these instructions.

Safety

First check that the power supply to be used corresponds with that on the unit legend plate.

This unit is supplied with a loose power cable including plug and socket arrangement and is therefore classified to protection class I.

The power supply plug must only be connected to a socket with an earth protection connection. This protection must be continued when using extension leads. Any breakage of the earth conductor within or outside the unit or loosening the earth connections can make the unit potentially dangerous. Intentional disconnection or an open circuit of this earth connection is not permissible.

There are no components in the unit that can be repaired by the user. All repairs must be made by trained service personnel.

Removing covers or components, except where this can be done by hand, must only be carried out by skilled personnel.

If it is assumed that the unit cannot be safely operated it must be immediately taken out of operation and secured against unintentional use.

It can be assumed that the unit cannot be safely operated,

- if the unit is visibly damaged
- if the unit no longer operates
- if the unit has been in storage under adverse conditions for a longer period of time
- after long transport under adverse conditions.

The manufacturer does not accept liability for any damage that has been done due to the unit not having been used in accordance with these safety instructions.

General

The water sampler must be installed so that it stands higher than the sampling point. It can be installed outside and mounted on a concrete foundation or solid level ground. The unit can be levelled by using the four levelling screws fitted in the bottom of the sampler. All components are mounted in a lockable, weatherproof plastic cabinet.

Installation

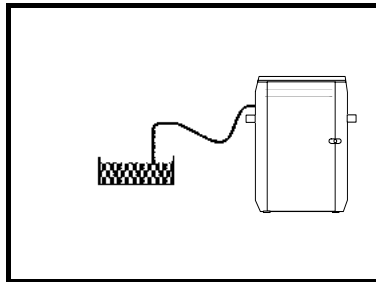
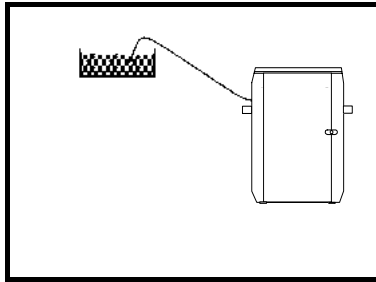
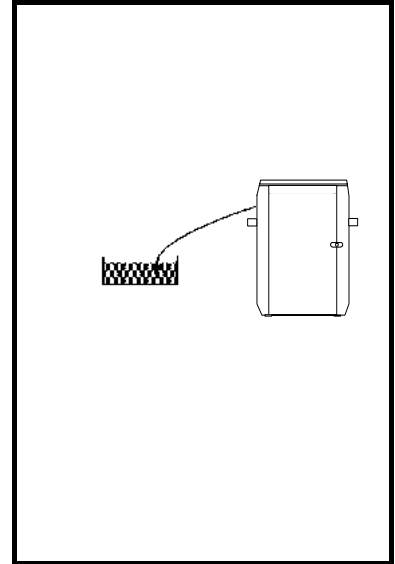
The cabinet must be installed in an area where an additional heating effect from external sources (eg. radiators, etc.) is avoided.

Do not install the sampler close to large magnetic fields (eg. motors, transformers, large contactors, etc). Do not install the sampler in areas where it can be subject to high mechanical vibration. Avoid shocks when transporting the sampler.

Hose connection / installation

The suction hose must be installed so that it always **rises** from the sampling point to the hose connection on the sampler !

Syphons must be avoided between the sampling point and sampler !

**Wrong****Right**

The sampler must not be connected to a **pressurised system !**

For sample lift less than 2 m we recommend using a 15 mm suction hose. Both 13 mm and 15 mm connections are delivered.

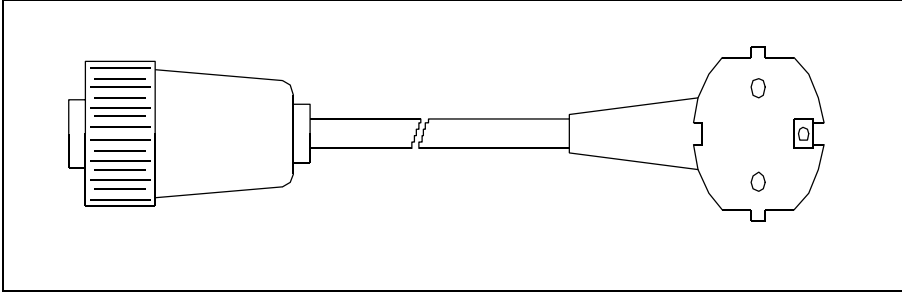
The minimum conductivity of the sample liquid must not be less than **30 microsiemens !**

- The 13 mm internal \varnothing hose must be of a spirally reinforced type.
- The hose can be connected to the connector on the top left hand side of the cabinet.
- Maximum height difference: 6m from sampling point to sampler.
- Maximum hose length: 30m

Power supply

Plug in the mains plug (female) on the mains cable to the controller socket C (male) and tighten the securing nut. Pull out rubber cable entry in housing wall and lay cable inside

Mains version (AC)

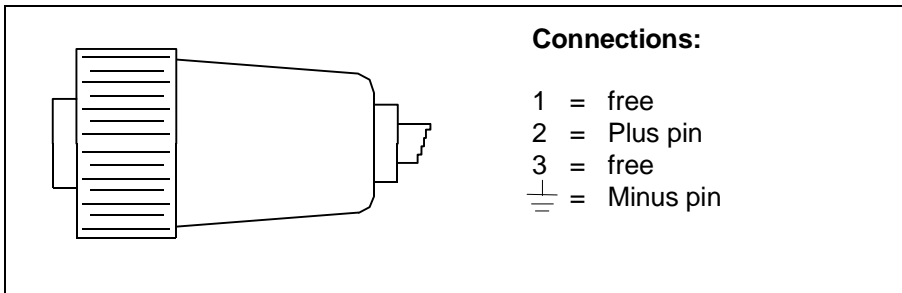


Plug connections: Numbers are engraved on the plug

1 = Black(L), 2 = free, 3 = Blue(N) \perp = Green/yellow (PE)

After having connected a 12 VDC power supply (see connections). Connect the 4 pole plug to the socket C and tighten using nut.

Direct current version (12 VDC)

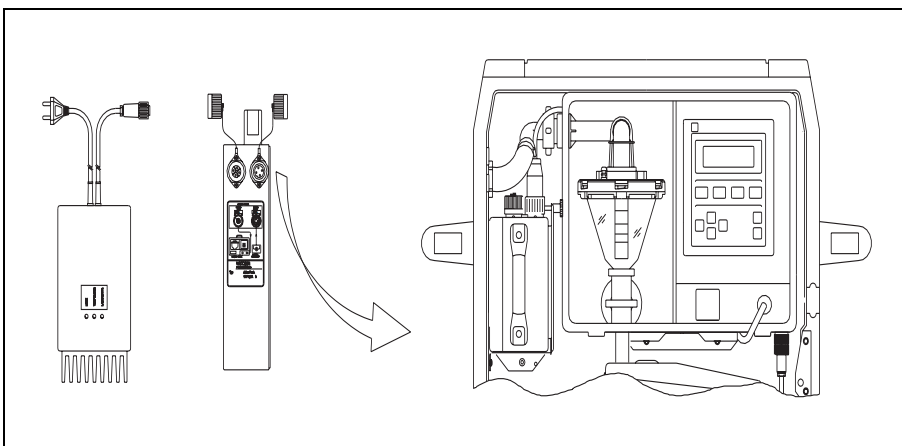


Always maintain the batteries used (i.e. regularly charged, recharge straightaway after long term use). Please take note of safety notes in separate instructions ! Disconnect "liqui-box d 2" from battery pack when storing. Store battery pack in a cool area and recharge at least every 6 months.



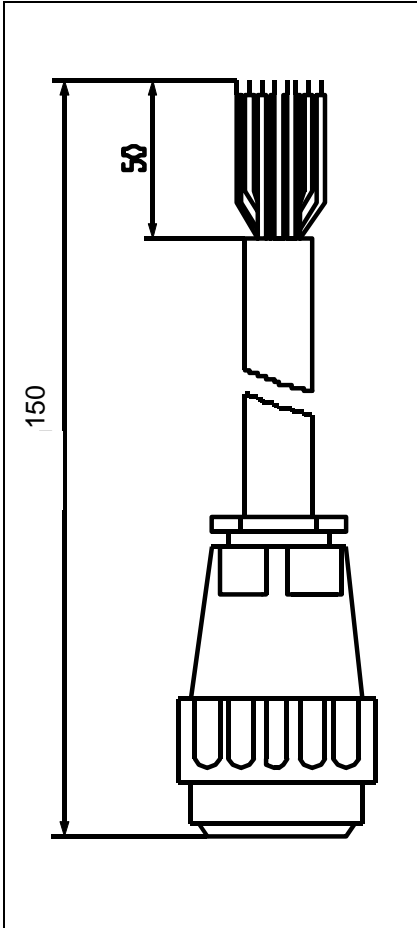
Follow connection diagram on the battery pack housing. Make connections !

Option "Battery pack / charger" "liqui-box d 2" 12 VDC:



In/outputs

Signal socket connections (Signal socket E)



White	= 1	= Auxiliary voltage (-) 0V (common)
Brown	= 2	= Auxiliary voltage (+) 8 to 19 V output
Green	= 3	= Flow impulse input
Yellow	= 4	= External stop input
Grey	= 5	= Do not connect
Pink	= 6	= Output 1
Blue	= 7	= Output 2
Red	= 8	= do not connect
Black	= 9	= Auxiliary voltage (+) 8 to 19 V output
Violet	= 10	= Analogue input (-)
Grey/pink	= 11	= Analogue input (+)
Red/blue	= 12	= Output 3
White/green	= 13	= Control input
Brown/green	= 14	= TXD
White/yellow	= 15	= RXD (+)
Yellow/brown	= 16	= RXD (-)
White/grey	= 17	= 0 V TTY
Grey/brown	= 18	= +U TTY

Cable type LiYY18 core
(approx. 1,5 m long)
Single cores x 0,23 / 0,25

Outputs

Alarms and signals are retransmitted using the three outputs. These outputs are constructed as open collectors and can be individually allocated in setting up addresses 150 to 152.

Transistor Outputs 1 and 2 are open in "Alarm" and "Power off" and conduct in "Normal operation".

Output 3 is dependent on the settings "standard" or "inverse" in address 152.

Standard: As outputs 1 and 2

Inverse: Open in "Normal operation" and "Power off" and conducting on "Alarm".

Inputs

1 Impulse input (Pin 3, green). Max.25Hz (+7 to +27 Volt).
For connecting an external quantity measuring system

1 analogue input (current or voltage)
Pin 10 violet for negative input, pin 11 grey/pink 5 for positive input.
For connecting an external quantity measuring system

1 Stop input (Pin 4 yellow). A voltage between +7 to +27 Volt on the input stops all sampler functions.
0 Volt (or open circuit) to +3 Volt initiates normal operation.

1 control input (Pin 13 white/green via optocoupler).
Presettable as programme change or event input.

Condition: Address 270 is set to "**ext. signal**".
A voltage of +7 to +27 Volt stops the actual programme (Adr.010) and changes to the target programme (as preset in address 271).
0V (or open circuit) to +3 Volt returns system to the initial programme.

Each positive signal edge initiates an immediate sample cycle. The condition for this is that the selected active programme (as preset in address 010) is set to "**Event**", (Setting up for programmes 1 to 6 is done in addresses 210, 220, 230, up to 260).

To record sampling sequences and preset parameters.
Connect pin 14 brown/green (from the sampler) (TXD) to pin 24 on the *Primo-Bit*.
Connect pin 18 grey/brown (from the sampler) (+UTTY) to pin 17 on the *Primo-Bit*.
Set up addresses 160 to 169.

Flow impulse inputs

Analogue flow input

External stop

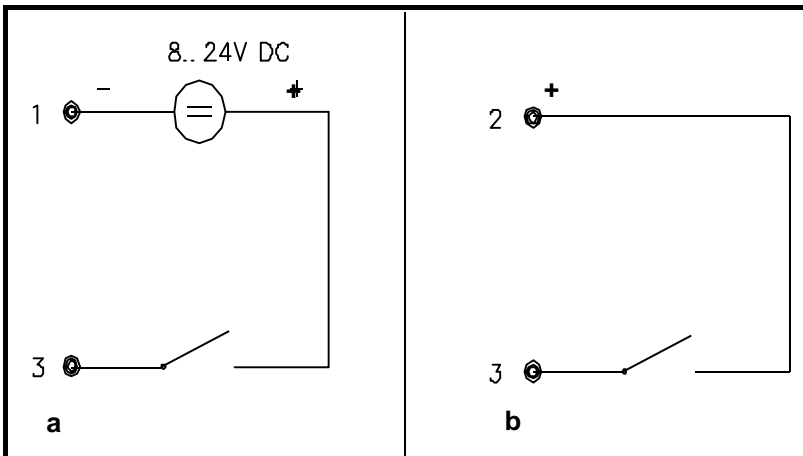
Control input

... for programme change

... as event input

Interface (TTY *Primo-Bit*)

Alternatives: In example "**Impulse input for flow input**"



a: Using external aux. voltage

b: Using internal aux. voltage eg. for potential free contacts

Connection examples

What happens on power up ?

Power failures

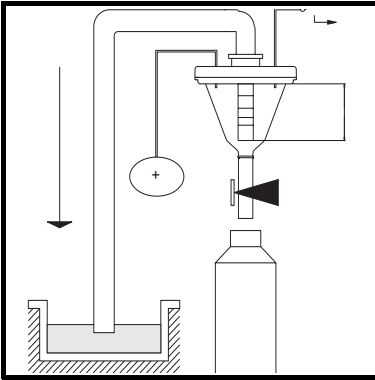
- a) The unit runs a self check (start up). Display shows "**Unit OFF**".
- b) **Short term** power failures (<24 hrs) during automatic operation
 No samples are taken, the inputs are not interrogated, however, the internal clock continues to run during power failure.
 On return of power the unit initiates a self check.
 The sampler now continues to operate as normally.
 If the power failure occurred during a sample cycle the water in the dosing glass is now released into a bottle.
- c) **Long term** power failures (>24 hrs) during automatic operation:
 No samples are taken, the inputs are not interrogated, however, the internal clock continues to run during power failure.
 On return of power the unit initiates a self check. The sampler now continues to operate as normally.
- d) **Long term** power failures (>500 hrs) have the following effect:
 Internal buffer accumulator is discharged. An error message is displayed (for message acknowledgement please see chapter "**Problems and solutions**").
 Reset operational data again. The unit must then be connected to mains power for at least 1 week (accumulator recharge). The sampler will operate normally during this time.
- c) Only when using "**liqui-box d 2**" in 12 VDC version !
 When connection operational voltage (12 VDC power source, accumulator or battery) to the unit the display shows:
"Error # 10 (0800)"
 Battery low voltage
 Charge battery
 Acknowledge with "**ON**".

On/off switching using the ON and OFF push buttons

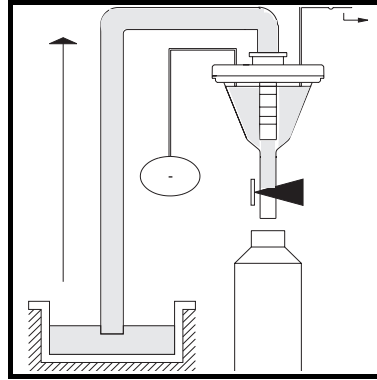
Switch off (operate **OFF**): This aborts the automatic cycle. Display shows "**OFF**". The unit should not be switched off during a sample cycle, always wait until the unit has completed the cycle. The sampler is switched off but still connected to the mains supply therefore heating (option) continues to operate.

Switch on (operate **ON**): Display shows "**ON**". The unit can be restarted by operating the "**AUT**" button.

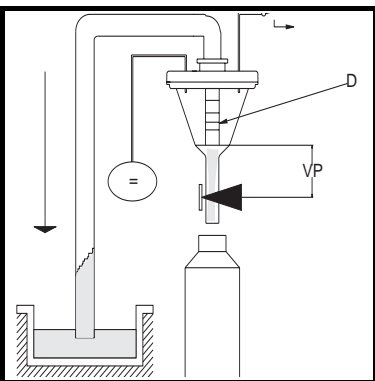
Vacuum principle



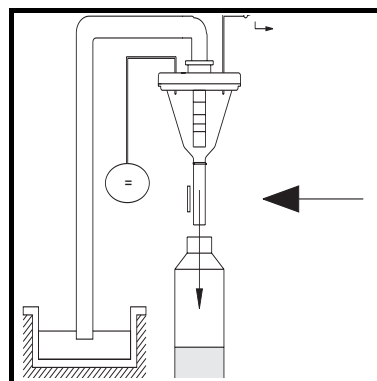
1 The dosing system is pneumatically sealed at the beginning of each sample cycle. The diaphragm pump then blows the suction hose free of obstructions via the dosing chamber



2 A fresh sample is then sucked into the dosing chamber until the conductivity level switch is activated (sensors in the dosing chamber flange)



3 The sample is now dosed to the preset volume (VP). This is dependent on the dosing tube position (D). Excess liquid flows back to the sampling point due to a syphonic effect.



4 The hose clamp is released and the sample flows into the composite container or bottles if operating using sample distribution.

General

The sampler is constructed for practical operation and can be applied virtually everywhere.

In addition to the versatile setting up the operator also has the possibility to preset six individual programmes. These can be accessed at any time. These programmes save time when changing from one application to another and can be done by unskilled personnel.

Presetting: The sampler leaves the factory preset with basic data. After switching on and operating the “**AUT**” push button it automatically operates using programme 1. This programme is preset to operate as time proportional sampling with a sample taken every 15 minutes and time proportional sample distribution with a bottle/container change every 2 hours. The sampling sequence is automatically stopped after the last bottle has been filled.

Restart by operating the “**AUT**” push button (do not forget to remove and empty or replace the filled bottles/containers).

Overfill security: Setting up addresses 110 and 111 are very important. These are used for setting up the automatic bottle/container overfill security.

Addr. 110 = Set up dosing volume (Dosing tube position in the dosing chamber) in ml (factory setting 200ml).

Addr. 111 = Set up bottle/container volume (factory setting 0,6l).



Always reset the dosing and bottle/container volume values on **initial installation** and when either of these criteria are **changed** (different dosing volume).

Programmes: There are **6 individual programmes** available. Programmes can be selected in address **010** without the use of a security code.
 For programme **2** functions see setting up addresses **220** to **225**
 For programme **3** functions see setting up addresses **230** to **235**
 For programme **4** functions see setting up addresses **240** to **245**
 and so on up to **6** programmes

The programme parameters can be easily changed by the user. Automatic programme change (eg. Q-T or Q-q) can also be defined in addresses 270 to 276.

Sampling and bottle/container change can be synchronised to a particular time. Setting up addresses 126, 127 and 128 are used for this purpose. These settings are only valid at the start of a programme using time proportional sample distribution.

Time synchronisation:
- Only valid for sampling -

Addr	Description	Works setting
126	Synchronisation mode: Time for automatic start (Aut push button) or preset time (addr. 127) operate as synchronisation time base	AUT push button
127	Synchronisation time for sample cycle and bottle/container change	00:00
128	Switch on/off fixed time base of bottles/containers	off

"asp-port d 2" if fitted externally with 12 bottles and 2 hour filling time per bottle.

Time synchronisation example:

On synchronisation time of 00:00 (addr. 127) and switched on bottle synchronisation (addr. 128) each bottle is allocated a fixed filling time independently from the time of the automatic sequence start.

Bottle	Fill time
1	0 to 2 Uhr
2	2 to 4 Uhr
3	4 to 6 Uhr

If bottle synchronisation is set to "**OFF**" in address 128 the automatic sequence starts with bottle 1. Bottle change takes place at the preset time (addr. 127). This is only valid if the actual programme runs with time proportional distribution.

In order to become familiar with the uses of this multifunction programme it is recommended that the user should work through each individual setting up level and address.

It is also recommended that new settings be noted in the empty charts ("**Operator settings**").



Varying sample volume

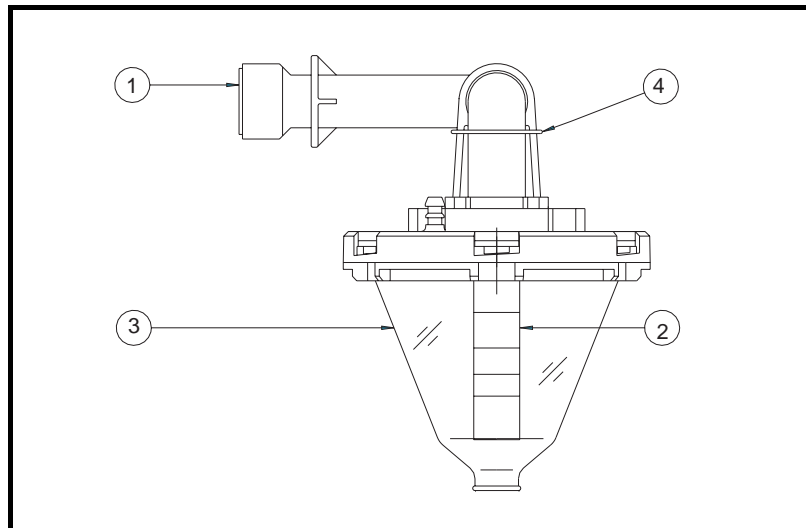
Follow the next steps.

1. Open cabinet door

2. Switch unit off

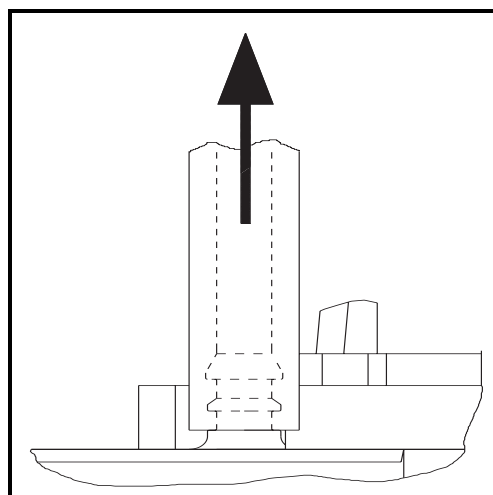
Operate the **- OFF- (4)** push button at the "asp-port d 2".

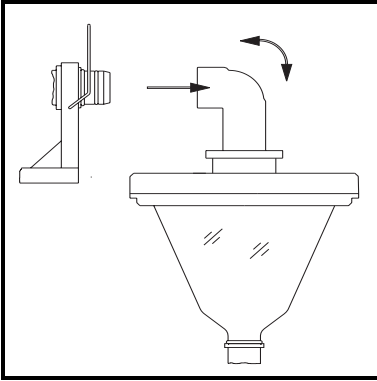
Dosing system:



- | | |
|--------------------|------------------|
| ① = Elbow | ② = Dosing tube |
| ③ = Dosing chamber | ④ = Piping clamp |

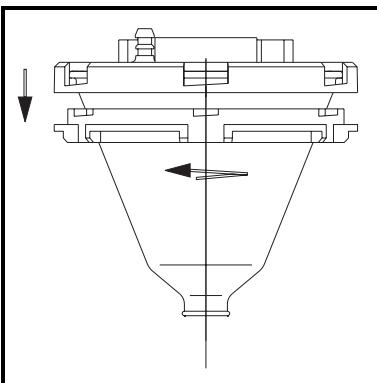
3. Remove air hose





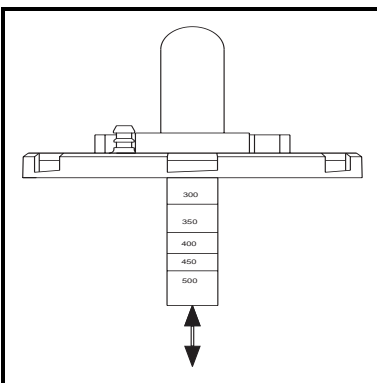
Lift clamp from pipe elbow.
Pull dosing system forwards and remove from controller.

4. Remove dosing system



Release the bayonet fitting by turning the lower part of the flange as shown. Remove the flange from the dosing chamber.

5. Remove flange



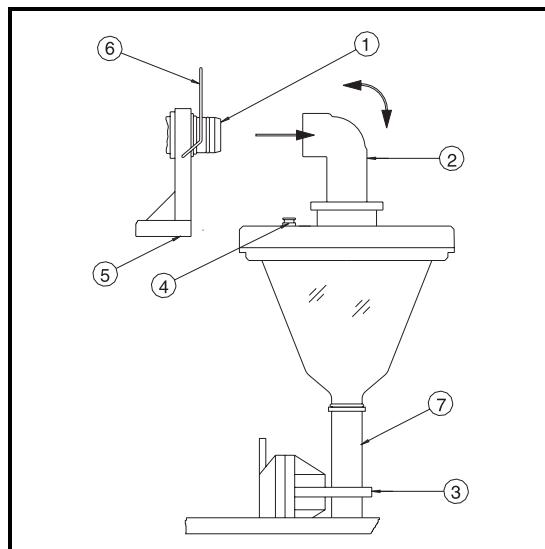
Set the dosing tube to the required sample volume by pushing it in or out. Take note of the engraved quantities on the tube. (The further the tube is pulled out of its retainer the smaller the sample volume)

6. Set sample volume

(Only move the dosing tube. **NEVER** loosen the nut and **NEVER** move the upper elbow.)

7. Replace dosing system

- ① = Nipple
- ② = Suction pipe elbow
- ③ = Hose clamp
- ④ = Contacts
- ⑤ = Spring contacts
- ⑥ = Fixing clamp
- ⑦ = Silicon hose



Push silicon hose ⑦ into the hose clamp ③.

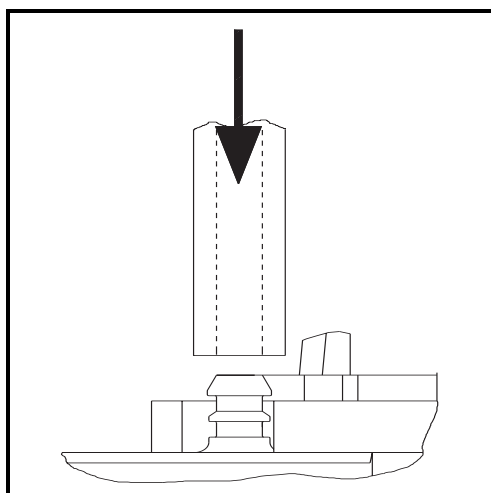
Push suction pipe elbow ② onto the nipple ①. (Make sure that the spring contacts and flange contacts are made).

Push fixing bracket ⑥ downwards.



"The contacts ④ and contact springs ⑤ must be made (otherwise faults can occur).

We cannot be held responsible for damage caused by not complying with these instructions !

8. Replace air hose

Maintain your **asp-port d 2** regularly. Clean the outside cabinet using a mild soap preparation.

Clean the distribution tap and pan with a mild soap cleaner (do not use solvents, spirits, etc.).

In order to clean the distribution tap, pull the tap upwards from the distribution pan, undo the clips and pull the two halves apart.

Regularly clean the dosing chamber if possible before the sampler indicates the need by a message. Clean the chamber, flange and electrodes with soap and water (do not use solvents, spirits, etc.). Make sure the system is dry before reassembly. Ensure the system is assembled correctly.

Hint: Treat the contacts on the upper flange as well as the spring contacts with contact grease.

Check for visible damage and replace if needed.

Always keep covered using the protective covers when not in use.

Always connect and switch the unit on for at least 48 hours if the unit has been out of operation for 6 months (protects the internal accumulator from total discharge).

If this is not possible the accumulator isolation switch must be opened (only by skilled personnel).

This switch can be found on the CPU board next to the "data security accumulator" behind the controller front keypad and display plate.

Should you need to return an **asp-port d 2** or part of it to your Endress+Hauser service department for repair please take note of the following:

Remove all deposits.

This is most important if the unit has been used in areas containing health hazardous waste or substances, eg. corrosive, poisonous, carcinogenic, radioactive etc. We must ask you not to return the unit if it is impossible to totally remove these substances from the unit, eg. if they have seeped into cracks or have been diffused into the plastics used on the sampler.

Please include a small description of the application conditions, installation area and medium properties. Also include a fault description as this will make fault finding simpler and faster and will, in the long run, save you money.

Many thanks for your assistance.

General

Distribution system

Dosing system

Power cable

Plugs and sockets

Storage

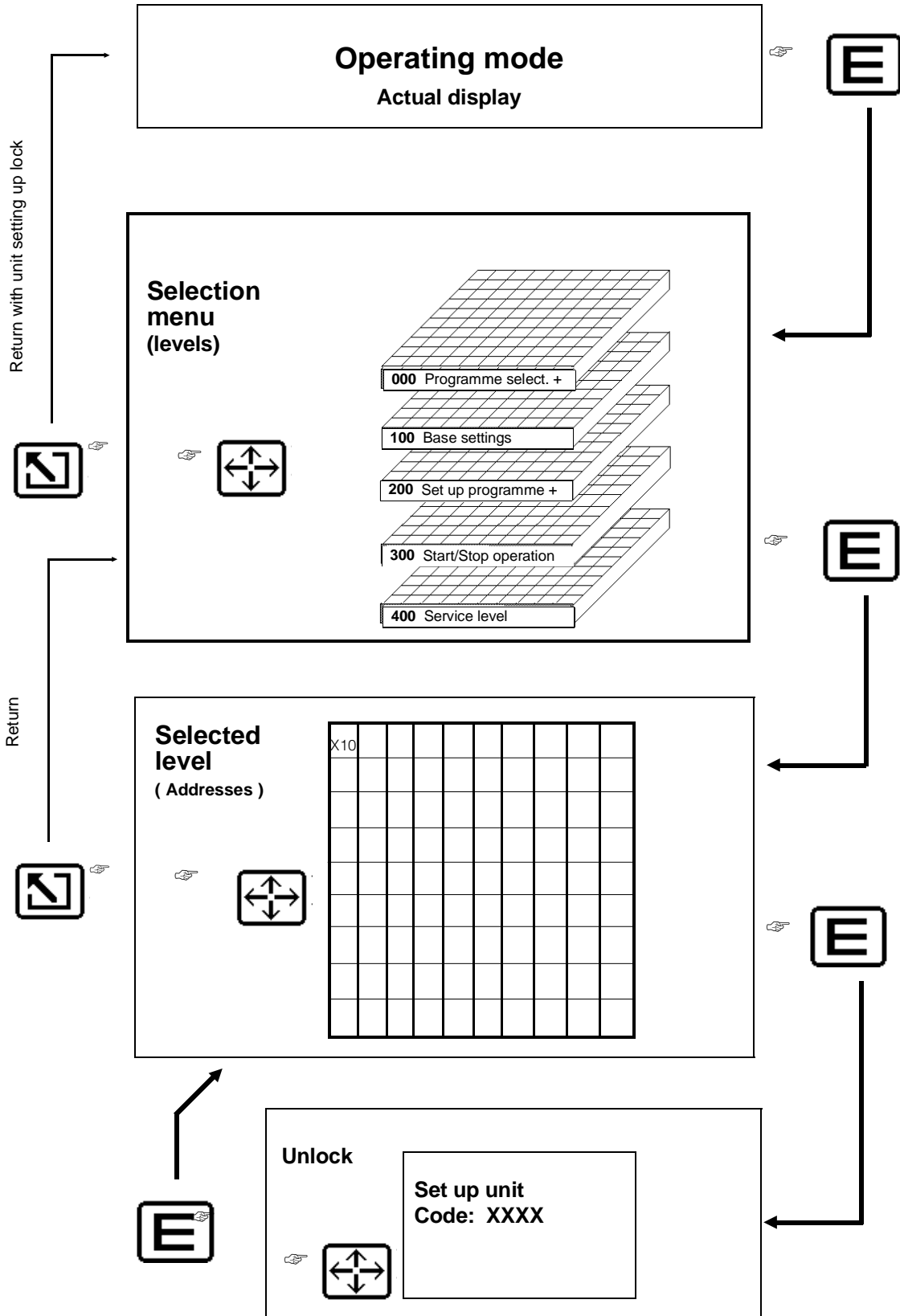
Repairs

Cleaning the asp-port d 2



Information about application area and fault

General



- "ON" Key** activates the controller (liqui-box d 2).
Display indicates ON with date and time.

- "OFF" Key** switches the controller (liqui-box d 2) off. Display indicates OFF
with date and time. An already started sample cycle is aborted
(or completed if the suction phase has been reached).
Controlled cooling and heating remains switched on.
Automatic operation is aborted.

- "AUT" Key** **starts the automatic mode** (new sequence).
- "MAN" Key** initiates an immediate sample cycle (blow-out, suction...).

Operating components



Operation is as shown on the page opposite. All values in all levels can be accessed following this format, displayed, but not changed (coded access lock). Level 0 is the exception, here the user can select and activate the programme required from the 6 programmes available. Data input in all other levels must first be unlocked using an access code (see technical data for details). Once unlocked a return to the previously selected address is made by operating the ENTER push button. The service level can only be accessed by using a separate access code known only to E+H service personnel.

"Operating mode/Actual display": In this display the sampler indicates its actual situation. This display is shown as soon as the ENTER push button has been operated once the controller is switched on (using the ON push button). It is also displayed once input has been finished by operating the HOME push button (2x) or if any push button has not been operated inside 5 minutes. If this happens the unit is immediately access locked.



Access the selection menu using ENTER. Using the arrow push buttons select the required level. Access the first address by operating ENTER. View the various addresses using the arrow push buttons.

Changing values: Operate ENTER, set up code, operate ENTER, change values using arrow push buttons, operate ENTER. If further values are to be changed this is done without using the access code. The addresses can be scrolled upwards using the arrow right push button (arrow left = downward scroll)

Setting up principle

- Access to selection menu.
- Access to first address in selected menu.
- Accept preset or changed data value..**

Enter push button:



- Return to selection menu.
- Return to operating mode (with access code lock).
- Abort setting up within an address (value is not accepted, old value remains so long as ENTER was not operated).

Home push button:



- Level selection when in selection menu.
- Selecting addresses when in a setting up level.
- Selecting individual values within an address and changing these if required.

Arrow push buttons:



In order to document user specific setting up data please use the empty tables available after "Service level".

Short form instructions for a swift start:

The following addresses are important when changing the factory settings in a sample sequence programme:

1. Select level "**Base settings**", unlock security code (code 6051)
Addr. 110: select and set up
Addr. 111: select and set up
2. Select level "**Programmes and changeover**"
Addr. 210: select and set up
Addr. 211 or 212: select and set up
Addr. 213: select and set up
Addr. 214 or 215: select and set up
3. Select level "**Programme selection and information**"
Addr. 010: select and set up
4. Operate "**Home**" push button
5. Start unit with "**AUT**" push button



Condition: The factory settings are valid for the remaining addresses.

This page was left empty for notes:

Programme selection and information

<p>010 Programme select A</p> <p>One, from programme 1 to 6 since: date/time</p>	<p>011 Print parameters</p> <p>Yes or No</p>								
<p>020 Power failures</p> <p>Number and minutes</p>	<p>021 Power failure time, last:</p> <p>from Date/time to Date time</p>	<p>022 External stops</p> <p>Number: 4 digit counter</p>	<p>023 External stop time, last:</p> <p>from date/time to date/time</p>	<p>024 Control input active</p> <p>Number: 4 digit counter</p>	<p>025 Control input last:</p> <p>from date/time to date/time</p>				
<p>030 Sample counter</p> <p>Number: 6 digit counter</p>	<p>031 Not taken samples</p> <p>Number and last on date/time</p>	<p>032 No flow</p> <p>Number: 4 digit counter and last: on date/time</p>	<p>033 Info counter per container</p> <p>Container XX Sample No. No.sam start. No flow</p>						
<p>040 Actual flow</p> <p>in l/sec or m³/h 4 digit</p>	<p>041 Temperature display</p> <p>Target: °C Act: °C Heat/cool</p>	<p>042 Battery voltage</p> <p>Only on 12 Volt DC lead acid battery operation</p>							

Adr.	Description	Works setting
010	Sampling: 6 programmes are in memory. One out of six can be selected in this address. This programme will become active in automatic operating mode (after AUT has been operated). Display and storage of selection time.	1 -
011	Condition: A protocol printer type Primo-Bit is connected. No: No printout Yes: The most important sampler operating data is printed out. Thereafter the display returns to No.	no
020	Number of and length of time of power failures - during automatic operation. (The counters are reset on new automatic operation start.)	0000 -
021	Length of time of last power failure (reset on new automatic start).	-
022	Automatic operation stop using an external signal (the ext.-stop input must be used and closed). All sample cycles are frozen whilst the signal is active only date, time, cooling and heating continue to operate. (The stop counter is reset on new automatic operation start)	0000
023	Length of time of last external stop signal (reset on new automatic operation start).	-
024	The positive edge of the signal at the "control input" (event or programme change) increase the counter by one (The counter is reset on new automatic operation start)	0000
025	Length of time of last event or programme change.	-
030	Sample counter during automatic operation (counter value minus "no flow" value, address 032, gives the actual number of samples taken) (This counter is reset on new automatic operation start)	0000
031	This counter is increased by one and the time noted if a sample start occurs during an already active sample cycle or when the overflow security is active. This sample is not taken. Reasons: Time interval selection was too short. Flow quantity selection was too small. Overflow security active or very fast event sequences. (This counter is reset on new automatic operation start)	0000 -
032	This counter is increased by one and the time noted if the dosing chamber is not totally filled during the sample suction time. A fault message appears in the display, this message is deleted at the start of the next sample cycle. Reasons: Sampling point dry. Hose blocked or not properly sealed. Or suction time selection too short. (This counter is reset on new automatic operation start)	0000 -
033	Data in addresses 030 to 032 set as single line information per bottle /container: Bottle/container number, number of samples, number of sample starts, how often a no flow was recorded Individual bottle data can be selected by operating ENTER until the bottle data required is in the display. This is valid for all forms of distribution, eg. 1 to 12 bottles.	XX 0000 0000 0000
040	Condition: That the flow measurement analogue signal is connected to the "analogue input" of the sampler.	xxxx m ³ /h
041	Target and actual temperature in the sample bottle surroundings. Display whether heating or cooling is active.	xx°C
042	Voltage measured at the 12 VDC input (Only valid for samplers operating with 12 volt direct current supply.	xx,x V

Base settings

110 Sample volume Set up range: 0...500 ml	111 Bottle volume Set up range: 00,0...99,9 l								
120 Self optimising sample phases ON / OFF	121 Blow out time (Phase 1) Set up range: 0...15 sec.	122 Suction time (Phase 2) Set up range: 10...360sec	123 Dosing time (Phase 3) Set up range: 5...150 sec.	124 Sample delay Set up range: 0...100 sec.	125 Conductivity sensitivity low middle high	126 Synchronisation AUT / time	127 Synchronisation time Hours 00 .. 24 Minutes 00 ... 60	128 Synchronisation bottle/container ON / OFF	
130 Thermostat On / Off	131 Preset temperature 0...30 °Cels.	132 Automatic defrost Yes / No	132 Defrost time Range 1 ... 999 min. Cycle range 2 ... 999 min.						
140 Select signal input type Analogue Impulse None	141 Select analogue input 0...20mA 4...20mA 0...1 V 0...10V	142 Set analogue input values l/Sec or m³/h Range: 1...9999	143 Set analogue input value decimal point Without, after 1. to 3. points	144 Set impulse input values l/Impulse or m³/Impulse 1...9999	145 Set impulse input values decimal point Without, after 1. to 3. points				
150 Set up output 1 One from eight pos. see description	151 Set up output 2 One from eight pos. see description	152 Set up output 3 One from eight pos. see description							
160 Select interface Primo-Bit or Option	161 Print sample report On or Off	162 Print parameter report on start On or Off	163 Installation name (unit identifier) 10 digit selectable	164 Serial unit address Selectable: 00...99	165 Select interface type TTY / (V24)	166 Set Baudrate Selection 300 / 600 / 1200 / 2400	167 Select parity Selection odd / even / mark / space	168 Select Stop-Bit Selection 1 / 2	169 Display of number of data Bits 7
170 Date 2 digits each Day, month, year	171 Time Hours 00...24 minutes 00...60	172 Summer/normal time changeover automatic/ manual/ switched off	173 Advance (1h) NT → ST Selection: Day, month, year; hour, minute	174 Reverse (1h) ST → NT Selection: Day, month, year; hour, minute					

Addr.	Description	Works settings
110	Set up the same dosing volume as on the filling tube in the dosing chamber	300 ml
111	Set up single bottle / container volume (-10% for safety) (Addr. 110/111 operate as bottle overflow security).	00,6 l
120	The total sample time is dependent on the hose length suction height and liquid. ON= self optimising. OFF= set up by user (Addr.121...123).	ON
121	The three phase times can be timed by taking manual samples (MAN push button). Blow out time = time from pushing Man button until air bubbles come out of the hose at the sampling point.	-
122	Suction time = Time from when bubbles no longer appear at the sampling point until the dosing chamber is filled.	-
123	Dosing time = Time after dosing chamber is filled until the liquid has reached its preset dosing volume (bottom of filling tube).	-
124	Target time XXX seconds by which each sample is to be delayed. Function: Sampling signal (output, see addr.150/151/152) is active XXX seconds before sample start and remains until sample has been dosed.	000 Sec.
125	Conductivity switch setting; can be set to suit the liquid being sampled. Should only be used under special conditions, normal operation set to middle.	middle
126	Time synchronised sampling	AUT button
127	Synchronisation time to which the sample cycles operate	00:00
128	Fixed allocation of bottle / container change selection (ON / OFF)	OFF
130	Activate or switch off cooling and heating automatic cycle.	ON
131	Set required sample preservation compartment temperature.	5 °C
132	Automatic refrigeration and heating phase (hourly defrost until internal temperature has increased by 2°C or a max 10 min.) or manual settings	Yes
133	Defrost time = Time in which the refrigeration fins are heated Cycle = Refrigeration running time until next defrost phase. Input only accepted when cycle > time.	10 60
140	For quantity proportional sampling. Selection is dependent on the transmitter.	analogue
141	For analogue input. Selection is dependent on the transmitter output. 4..20mA has cable open circuit monitoring (fault display and message). Note: Change switch in unit when using 0..1/10 V (see section "Change analogue input).	0...20 mA
142	For analogue input. Value and range is dependent on transmitter and flow rate. Setting: Maximum flowrate, eg. 20 mA = 1000 m ³ /h	1000 m ³ /h
143	For analogue input. Set decimal point for the above value.	None
144	For impulse input. Set up litre or m ³ per impulse (dependent on transmitter).	-
145	For impulse input. Set decimal point for the above value.	-
150	Relay output 1 selection: ☛Signal during container change (Distribution tap running) ☛Signal during sampling (see Addr. 124) ☛Acknowledgement of external stop input ☛Automatic sequence end (last bottle/container is full). Signal active until next automatic start sequence. ☛Error signal "No flow". Signal active until next sample cycle. ☛Error signal "Electrodes 1/" (conductivity electrodes) dirty. Signal active until (cleaned) acknowledged. ☛All error signals and faults = cumulative alarm. ☛Not used.	Probe 1/2 Soiled
151	Relay output 2 selection as above (Addr. 150)	Sample
152	Relay output 3, mains power connected. Selection as above (Addr. 150). Switch function selectable as "Standard" or "Inverse".	Cumulat. alarm "Standard"
160	Used for sample report printout using the serial printer type Primo-Bit.	Primo-Bit
161	Complete sample sequence report on paper (Primo-Bit), ON or OFF.	ON
162	Parameter report printed out on each automatic sample sequence start, ON or OFF	ON
163	For identification - Must be individually set up.	asp-port
164	Set up varying identifier addresses if multiple samples are connected in a TTY series link. Only available as an OPTION.	01
165	Set up TTY for Primo-Bit TTY (V24 =Option).	TTY
166	Set up 300 for Primo-Bit.	300 Baud
167	Set up "even" for Primo-Bit.	Parity even
168	Set up 1 for Primo-Bit.	1 Stop bit
169	Set up 7 for Primo-Bit. Set up the following at the Primo-Bit: Code 6051, A1, Mod 010, B42, Code 9999.	7 Data bit -
170/171	Change date / time.	actual
172	Automatic = Repeated yearly: Last Sunday in March at 2 o'clock: advance to 3 o'clock. Last Sunday in September at 3 o'clock: reverse to 2 o'clock. (Off = no changeover)	Automatic
173/174	Manual (Addr.172): Set up advance and reverse switch times individually. Note: Same values as in addr.173/174 stops changeover.	-

**Programmes:
Creating and changeover**

210 <i>Sampling</i> Progr. 1 Time/ Quantity/ Event	211 <i>Time interval</i> Progr. 1 Range: 00h 01min. ...99h 59 min.	212 <i>Sampling quantity</i> Progr. 1 Litre or m ³ 0001...9999	213 <i>Sample distribution</i> Progr. 1 Change on Time or Samples	214 <i>Fill time per bottle</i> Progr. 1 Range: 00h 01min. ...99h 59min	215 <i>Samples per bottle</i> Progr. 1 0001...9999				
220 Progr. 2 Works setting: Time	221 Progr. 2 Works setting: 10 min	222 Progr. 2 Works setting: -	223 Progr. 2 Works setting: To time	224 Progr. 2 Works setting: 1 hour	225 Progr. 2 Works setting: -				
230 Progr. 3 Works setting: Time	231 Progr. 3 Works setting: 1 hour	232 Progr. 3 Works setting: -	233 Progr. 3 Works setting: To time	234 Progr. 3 Works setting: 24 hours	235 Progr. 3 Works setting: -				
240 Progr. 4 Works setting: Quantity	241 Progr. 4 Works setting: -	242 Progr. 4 Works setting: 10 m ³	243 Progr. 4 Works setting: To time	244 Progr. 4 Works setting: 2 hours	245 Progr. 4 Works setting: -				
250 Progr. 5 Works setting: Quantity	251 Progr. 5 Works setting: -	252 Progr. 5 Works setting: 10 m ³	253 Progr. 5 Works setting: To time	254 Progr. 5 Works setting: 2 hours	255 Progr. 5 Works setting: -				
260 Progr. 6 Works setting: Event	261 Progr. 6 Works setting: -	262 Progr. 6 Works setting: 10 m ³	263 Progr. 6 Works setting: To samples	264 Progr. 6 Works setting: -	265 Progr. 6 Works setting: 1				
270 <i>Programme change criteria</i> Time Quantity: Too much/little. Ext.Signal. Not active	271 <i>Programme change from A to B</i> Act.Progr.#X to Target progr. #1...6	272 <i>Programme change, Switch times</i> Times: Change to. change back.	273 <i>Programme change</i> Day selection Daily the same To:Mo...Sun Back:Mo...Sun	274 <i>Programme change</i> Changeover value l/Sec or m ³ /h 1...999	275 <i>Change to next bottle on:</i> Change to. change back.	276 <i>Sample after programme change</i> Yes / No			
280 <i>Overfill security</i> Yes / No									

Address	Description	Works settings
210	Programme 1: (Select one from three possibilities) - Time proportional sampling: Samples are taken in even time cycles. - Quantity proportional sampling: High flow = Many samples Low flow = Few samples Condition: That a flow meter is connected to the sampler. - Event controlled sampling: So long as address 270 is not set to "Ext.Signal" an external signal (positive edge) at the control input initiates an immediate sample.	Timed
211	Time proportional sampling: Set up time between each sample cycle.	15 min.
212	Quantity proportional sampling: Set up the quantity at which the sampler is to initiate a sample cycle.	-
213	Distribution tap changeover: Select if timed or number of samples released initiates a change to next bottle.	Timed
214	Set up time for distribution tap change to next bottle.	2 hours
215	Set up number of samples to be taken before distribution tap change to next bottle.	-
220-225	Set up programme 2 (see Addresses 210-215).	See matrix
230-235	Set up programme 3 "	"
240-245	Set up programme 4 "	"
250-255	Set up programm 5 "	"
260-265	Set up programme 6 "	"
270	Programme change (Select one from four possibilities) Not active: No programme change. Time: Programme change at preset times. Quantity: An external flow meter must be connected to the sampler. Programme change is dependent on preset high and/or low flow limits Return (reset) hysteresis is 1% of preset value. Ext.Signal: Programme change is initiated by an external signal at the "control input" Return (reset) when signal is no longer active. Condition: That addresses 210/220 and so on up to 260 are not set to "Event".	Not active
271	A = Selected active programme (addr. 010). B = Changeover target programme.	-
272	Programme change Set times for changeover and return (reset).	-
273	...The same every day or select: Changeover day (select one day from Monday to Sunday) and return (reset) day (select one day from Monday to Sunday).	-
274	Programme change dependent on flow. Set up limit for programme change.	-
275	Bottle change on programme change: Select yes or no Bottle change on programme return: Select yes or no.	-
276	Immediate sample cycle on programme change: Select yes or no	
280	Yes = Sample sequence end after filling last bottle. This is indicated with a sequence end message No = Continuous operation (distribution tap continues to turn. Plan bottle change as these may overflow !!!).	Yes

Start / stop operation

310 Start/Stop mode Continuous Once Daily Mo/Tue.. Sat/Sun	311 Start/Stop- Reset to zero Yes / no								
320 Start date Not active Active = Day, month, year	321 Stop date Not active Active = Day, month, year								
330 Start time once Not active Active = Time Hr. min.	331 Stop time once Not active Active = Time Hr. min.								
340 Start time #1 daily Not active Active = Time Hr. min.	341 Stop time #1 daily Not active Active = Time Hr. min.	342 Start time #2 daily Not active Active = Time Hr. min.	343 Stop time #2 daily Not active Active = Time Hr. min.	344 Start time #3 daily Not active Active = Time Hr. min.	345 Stop time #3 daily Not active Active = Time Hr. min.	346 Start time #4 daily Not active Active = Time Hr. min.	347 Stop time #4 daily Not active Active = Time Hr. min.	348 Start time #5 daily Not active Active = Time Hr. min.	349 Stop time #5 daily Not active Active = Time Hr. min.
350 Start time #1 week day Not active or 1 day from Mo...Sun time	351 Stop time #1 Week day Not active or 1 day from Mo...Sun time	352 Start time #2 Week day Not active or 1 day from Mo...Sun time	353 Stop time #2 Week day Not active or 1 day from Mo...Sun time	354 Start time #3 Week day Not active or 1 day from Mo...Sun time	355 Stop time #3 Week day Not active or 1 day from Mo...Sun time	356 Start time #4 Week day Not active or 1 day from Mo...Sun time	357 Stop time #4 Week day Not active or 1 day from Mo...Sun time	358 Start time#5 Week day Not active or 1 day from Mo...Sun time	359 Stop time #5 Week day Not active or 1 day from Mo...Sun time
360 Start time #6 Week day Not active or 1 day from Mo...Sun time	361 Stop time #6 Week day Not active or 1 day from Mo...Sun time	362 Start time #7 Week day Not active or 1 day from Mo...Sun time	363 Stop time #7 Week day Not active or 1 day from Mo...Sun time	364 Start time #8 Week day Not active or 1 day from Mo...Sun time	365 Stop time #8 Week day Not active or 1 day from Mo...Sun time	366 Start time #9 Week day Not active or 1 day from Mo...Sun time	367 Stop time #9 Week day Not active or 1 day from Mo...Sun time	368 Start time#10 Week day Not active or 1 day from Mo...Sun time	369 Stop time#10 Week day Not active or 1 day from Mo...Sun time

Address	Description	Works settings
310	<p>Select one from six possibilities:</p> <p>Continuous operation: Once the AUT push button has been operated the unit operates continuously with the preset programme (addresses 320 - 369 not active). No start / stop function !</p> <p>Once: 1 start and stop time including date. (set up in addresses 320/321 and 330/331).</p> <p>Daily: A maximum of 5 start and stop times can be set up and are valid for each day (addresses 340 to 349).</p> <p>Daily with date: Each can have 5 start and stop times set up and is valid daily between the preset start and stop dates. (Set up in addresses 320/321 and 340/349).</p> <p>Week day: A maximum of 10 independent start and stop times can be set up. These include weekdays (Monday to Sunday). This data is set up in addresses 350 to 369. This function is repeated weekly.</p> <p>Week day with date: Set up start date (addr.320) and stop date (addr.321). Now set up a maximum of 10 independent start and stop times Each with a weekday, ie. Monday to Sunday (addr.350 to 369). The sampler operates from the start date to the stop date. Within these two dates it operates using the preset start and stop times. Note: The start and stop times are repeated weekly if the start and stop dates are far enough apart.</p>	Continuous
311	<p>Yes: All start/stop times are reset to zero.</p> <p>No: The start/stop times remain unchanged.</p>	-
320 bis 369	See address 310	Not active

The start stop operation mode is linked to the automatic mode (operation of the "AUT" push button). Date/time as well as the heating and cooling cycles continue to operate.

General information to the start/stop operation mode.

The automatic sequence starts or restarts on reaching the start time (or continues to operate). The times of sample cycle start and distribution bottle change, if set to timed, are always referred to the start time.

For example: Start time Monday 00:00, time cycle 15 min.
Distribution 2 hours.

This means that: Sampling occurs on Monday at 00:15, 00:30, 00:45 etc.,
Distribution at 02:00, 04:00, 06:00 etc..

The automatic sequence is stopped once the stop time is reached.

On the next start time (at timed sampling and distribution) the sample cycle timer (eg. 15 min.) restarts at zero, the distribution timer continues to operate as normal (from distribution time at stop time).

The conditions set for the "Time proportional sampling" are valid for the sample cycle counter when set to "Quantity proportional sampling". Also the same conditions are valid for the distribution counter whether set to "Timed bottle change" or "Number of samples bottle change".

Combine the stop time with the distribution switch times.

Recommendation

Service level

<p>410 Update Service date</p> <p>Yes / no</p>	<p>411 Software</p> <p>Name and version number</p>	<p>412 Processor report</p> <p>Abort counter 3 digit last fault 4 digit</p>							
<p>420 Sampler running time</p> <p>Hours 6 digit</p>	<p>421 Pump running time</p> <p>Hours each 6 digit resettable and totaliser</p>	<p>422 Cooler running time</p> <p>Hours each 6 digit resettable and totaliser</p>	<p>423 Sample counter</p> <p>Each 6 digit resettable and totaliser</p>	<p>424 Electrode 2 errors</p> <p>Each 4 digit resettable</p>	<p>425 Ack. without cleaning</p> <p>Each 4 digit resettable and totaliser</p>				
<p>430 Sample test</p> <p>Function in steps</p>	<p>431 Distribution tap test</p> <p>Change in steps or on 1 container</p>								
<p>440 Select analogue calib. range</p> <p>0...20 mA 4...20 mA 0...1V 0...10V</p>	<p>441 Connect 0% value</p> <p>0 mA or 4 mA or 0 V</p>	<p>442 Connect 100% value</p> <p>20 mA or 1 V or 10 V</p>	<p>443 Accept calibrated values</p>						
<p>450 Calibrate temperature input</p> <p>active or not active</p>	<p>451 Calibrate 0°C</p> <p>Connect 1615 Ω reference resistor</p>	<p>452 Calibrate 50°C</p> <p>Connect 2372 Ω reference resistor</p>	<p>453 Accept calibrated values</p>						
<p>460 Unit test</p> <p>active or not active</p>	<p>461 Test outputs</p> <p>In/out: output 1...3 heating cooling pump</p>	<p>462 Test inputs</p> <p>Off, impulse input, stop input, programme change</p>	<p>463 Test serial channel</p> <p>TTY: Connect input with output</p>	<p>464 Test analogue input</p> <p>0% value 100% value Result: XXX.X %</p>	<p>465 Test temperature input</p> <p>Connect 1615 Ω 2372 Ω</p>				
<p>470 Activate RESET</p> <p>Yes / no</p> <p>Last on...</p>	<p>471 Activate PRESET</p> <p>Yes / no</p> <p>Last on...</p>								

Address	Description
410	Date of last service. Must be set to "Yes" and initiated by service technician !
411	Please always indicate this value on any queries !
412	Sum of all faults that led to an abort. Last fault is indicated with an error code number.
420	Total unit running time (time connected to mains power).
421	Pump running time (pump running time ÷ unit running time = use ratio) This counter should be reset to zero by the service technician when changing the pump.
422	Cooler running time (cooler running time ÷ unit running time = use ratio) This counter should be reset to zero by the service technician when changing the cooler.
423	Number of sample cycles.
424	Number of times the safety electrode (electrode 2) switched the unit off.
425	Number of times this was acknowledged without cleaning the electrode. (Note: We the manufacturer cannot accept any liability, this includes guarantee claims for any damage occurring).
430	Test phases: Start, go to zero point, close hose clamp, blow out, suck, dose, open hose clamp, zero point.
431	Display of actual distribution tap position. Change tap position by operating the ENTER push button.
440 bis 443	Calibrate analogue input see matrix.
450 bis 453	Calibrate temperature input see matrix.
460 bis 465	Unit test (quick check) see matrix.
470	RESET means: All dynamic data (eg. counter values) are reset.
471	PRESET means: All programme settings, data and counter values are deleted and reset to works settings. Therefore BE SURE !

User settings

010	168	254	352
110	169	255	353
111	172	260	354
120	173	261	355
121	174	262	356
122	210	263	357
123	211	264	358
124	212	265	359
125	213	270	360
126	214	271	361
127	215	272	362
128	220	273	363
130	221	274	364
131	222	275	365
132	223	280	366
133	224	310	367
140	225	311	368
141	230	320	369
142	231	321	
143	232	330	
144	233	331	
145	234	340	
150	235	341	
151	240	342	
152	241	343	
160	242	344	
161	243	345	
162	244	346	
163	245	347	
164	250	348	
165	251	349	
166	252	350	
167	253	351	Date Name

User settings

(Reserve table can be copied for multiple use)

010	168	254	352
110	169	255	353
111	172	260	354
120	173	261	355
121	174	262	356
122	210	263	357
123	211	264	358
124	212	265	359
125	213	270	360
126	214	271	361
127	215	272	362
128	220	273	363
130	221	274	364
131	222	275	365
132	223	280	366
133	224	310	367
140	225	311	368
141	230	320	369
142	231	321	
143	232	330	
144	233	331	
145	234	340	
150	235	341	
151	240	342	
152	241	343	
160	242	344	
161	243	345	
162	244	346	
163	245	347	
164	250	348	
165	251	349	
166	252	350	
167	253	351	Date Name

Works setting: current input

The sampler is always delivered set on **current input**.

Selection of 0 ...+20mA or +4 ...+20mA is done in address 141. There is no need to open the controller.

...change to voltage input:

For special applications the controller can be set to a **voltage input** of 0 ...+1 Volt or 0 ...+10 Volt.

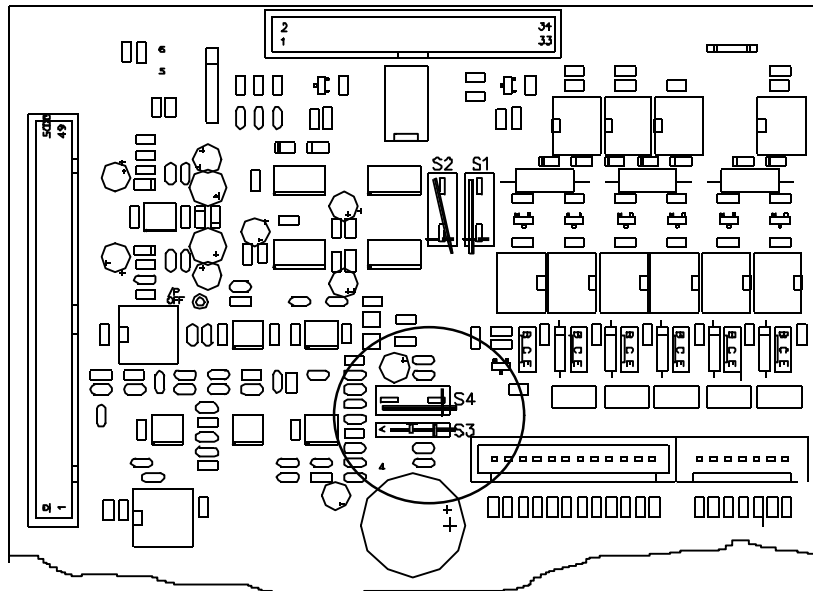
This change should only be done by skilled personnel.

Follow the following steps:

Pull mains power, the sampler should not be connected to power !

Undo and remove the eight black Philips screws from the front plate of the controller. Pull the front plate forward and remove the ribbon cable connector if need be.

Set switches S3 / S4 on the motherboard to suit the connection required:



0...1V	= S3 open	and	S4 in position 1	
0...10V	= S3 open	and	S4 in position 2	
0/4...20mA	= S3 closed		S4 in position 1	

Reassembly is exactly the reverse. Now set up the input required using addresses 140 to 143.

For information only

Base board:

TTY signal:

TxD 20 mA S1 in position 1*
 TxD 0 mA S1 in position 2
 TxD 20 mA S2 in position 2*
 TxD 0 mA S2 in position 1

CPU board

Option V24 (RS232) signal:

TxD +12V LBR1 onLBR2 off*
 TxD -12V LBR1 offLBR2 on
 TxD +12V LBR4 onLBR3 off
 TxD -12V LBR4 offLBR3 on*

AC-DC version:

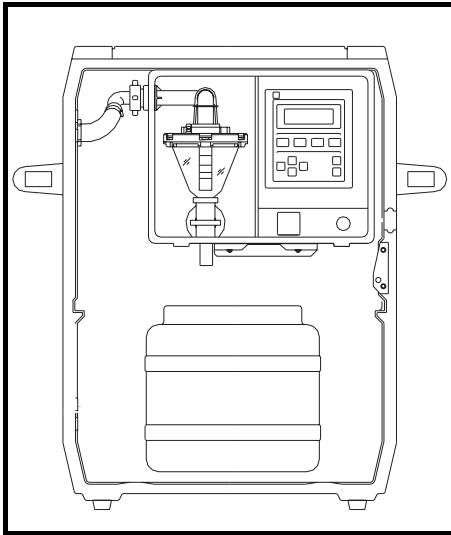
AC version LBR5 off*
 DC version LBR5 on

* = Normal delivery without option

The sampler can operate using a composite container or can distribute the samples into a number of discrete bottles using a sample distribution system.

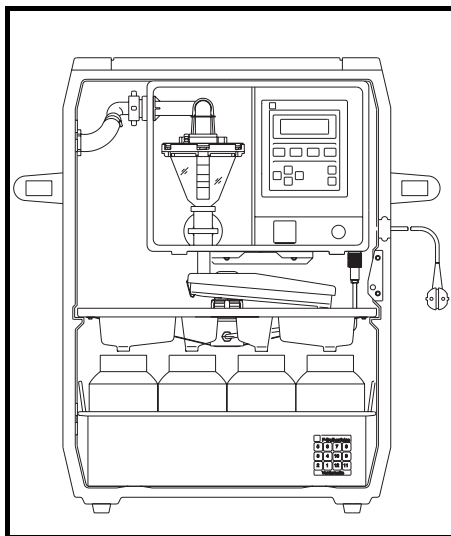
Changing from one form of distribution to another can be done by simply exchanging one form for another.

Changing number of bottles



1. Remove the composite container and replace with new bottle tray (first remove the bottle lid).
2. Push distribution tray in using the guides and plug in cable.
3. Make sure that the sample outlet hose fits into the distribution tap.

Changing from composite container to distribution



1. Remove bottle tray.
2. Unplug distribution tray cable from its socket and replace tray with the composite container

Changing from sample distribution system to composite container

1. Unplug distribution tray cable from its socket.
2. Remove bottle tray and distribution system and replace with new system, then connect cable.
3. Make sure that the sample outlet hose is placed inside the distribution tap.

Changing to other distribution types

- a) Only use "bottles/bottle tray/distribution" that belong to each other.
- b) 4 x 9l systems operates with single bottles and no distribution tray.
- c) Do not forget to remove the bottle lids.



Fault messages

The sampler contains a self monitoring function system. Faults occurring are displayed including a fault number as well as a hint as to how to remove the fault. Once the fault has been removed acknowledge this by operating the ON push button.

Fault- No. #	Display	Cause and cure
01	Composite fault See operating instructions	Follow all steps as in # 03 to # 09 in order to cure. If no cure: contact E+H Service .
03	Electrode 1 short circuit Clean dosing system	Remove dosing chamber, flange and electrodes (underside of flange) clean thoroughly.
04	Electrode 2 active Clean electrodes	As # 03 Careful: = Safety switch, must be cleaned !
The manufacturer does not accept any liability for any damage (flooding on sampling) occurring to the unit if this fault has been acknowledged without first cleaning the dosing system and electrodes !		
05	Air manager see operating instructions	Edge connector loose or pneumatic controller defective.
06	Distribution tap zero point	Distribution system defective, Exchange distribution system or have unit repaired by E+H Service .
07	Distribution tap manipulated see operating instructions	Distribution tap mechanically blocked or manually moved (>7,5°) Distribution tap is self-positioning.
08	Distribution tap connector Check connection	Connection from distribution system to controller must be solid.
09	Input current <3mA Check connection	Cable open circuit on 4..20 mA. Check cable and meter.
10	Battery low voltage Charge battery	Only on 12VDC version.
11	Temperature Check sensor	Temperature sensor not plugged in or defective.

System error

Preset done	EEPROM + RAM data loss. fatal error, E+H Service .
Reset done	RAM data loss. Unit too long without power; Set up user data new. Internal accumulator (empty or), defective, E+H Service .
Calibration missing	Recalibrate analogue or temperature input, E+H Service .
Unit fault	Check power supply and that the ambient temperature range is not exceeded. If fault reoccurs: E+H Service .



Faults # 03 and # 04 are meant as maintenance displays.
The four digit fault number, in brackets, is for the decoding of multiple and system errors by E+H service personnel.

Description	Order code	Spare parts
-------------	------------	-------------

liqui-box d 2 control module...

Complete control module (standard)	RPF1D-1HA1	
Complete control module (illuminated display)	RPF1D-1HB1	

Cabinet and external components:

External elbow fitting 13 mm	50062334 + 50042066	
External elbow fitting 15 mm	50042066	
Jubilee clip 13 mm	50031883	
Jubilee clip 15 mm	50031887	
Suction hose 13 mm	50074496	
Suction hose 15 mm	50031904	
O ring for elbow fitting	50031700	
Power supply socket cap	50032370	
Signal socket cap	50046009	
Power supply cable 230 V	50041586	
Connection cable "liqui-box - battery pack	50043008	
Signal plug with 1.5 m cable	50046599	
12 VDC battery pack	50046155	
12 V, 3 A battery charger	50046154	

Dosing system and pneumatic:

Dosing chamber 200 ml	50072149	
Dosing chamber 350 ml	50038228	
Outlet silicon hose 6,5 cm	50037923	
Clip for silicon hose	50031087	
Hose clamp	50042508	
Hose clamp diaphragm	50031633	
350 ml volume dosing kit	UE-LDH	
200 ml dosing chamber flange	50072151	
200 ml dosing chamber bayonet ring	50072150	
O ring set	UE-LDB	
Vacuum pump 230 V AC	UE-LPK	
Vacuum pump 12 V DC	UE-LPL	
Pump spare parts set	50076467	

Distribution systems / bottle trays:

12 bottle distribution system	UE-SVF	
24 bottle distribution system	UE-SVG	
12 x 1,9 l PE bottle tray	FLKORB-F	
24 x 1 l PE bottle tray	FLKORB-C	
24 x 2 l glass bottle tray	FLKORB-G	

Please give order code when requesting prices or ordering components !

Cabinet:	Hard polyurethane foam H x W x D approx. 725 x 532 x 400 mm		
Weight:	Approx. 28 kg		
Protection class	Controller (Keypad): IP 55 to DIN 40050		
Allowable ambient temperature:	Without heater	+0°C ... +40°C	
	With heater	-15°C ... +40°C	
Allowable medium temperature:	>0°C ... +50°C		
Minimum liquid conductivity:	≥ 30 µS/cm (others optional)		
Power supply:	230 V AC + 10% -15%, 50/60 Hz or Option: 12 VDC, Range 11 ... 14 VDC, (OFF:≤9.8V, ON:≥10.8V)		
Power consumption:	AC version:	Without heater 50 W, with heater 80 W	
	Option:	12 VDC version max. 30 W, (OFF:approx. 20 mA, ON:approx. 25 mA, approx 1.5 A during sampling)	
Safety:	To VDE 0411 Part 1 protection class I, overvoltage categorie II		
EMC/immunity:	To EN 50082-1		
RF:	To EN 55011, class A (Industrial surroundings)		
Data security:	Up to 500h during power failure (condition: powered for at least 7 days previously)		
Security code number	All entries and data protected against unauthorised tampering by means of a security code number. The code number to unlock the programme for setting up is " 6051 "		
Feed system:	Built in diaphragm pump		
Feed conditions:	Feed height	: max. 6m	at 1013 hPa
	Feed distance	: max. 30m	at 1013 hPa
	Suction velocity	: 0.6m/sec,	
		13 mm diameter hose	
Sample volume:	20 ml to 200 ml presettable (option 350ml)		

6 individual presettable programmes, presettable programme change (switching) conditions (eg. Q-t changeover, Q-q changeover, etc.)

Possibilities : Time proportional
 Quantity proportional
 Event controlled
 Manual start

Sampling modes:

Individual start/stop operation using daily/weekday switch functions

Timer

Via presettable filling time or number of samples in bottle or container
 With presettable sequence end after last bottle or continuous operation.

Sample distribution:

Optocoupler input: Positively flanked, galvanically isolated,
 min. impulse length 10 ms
 Low: 0 ... 3 Volt High: 7 ... 27 Volt

Impulse input:

Switchable as current or voltage input:
 Current input max. load 50 Ohm: 0 ... +20mA
 4 ... +20mA
 Voltage input load 1 Megaohm: 0 ... +1Volt
 (Select via switch) 0 ... +10Volt

Analogue input

Optocoupler input: Galvanically isolated, stop when high
 Low: 0 ... 3 Volt High: 7 ... 27 Volt

Stop input:

Optocoupler input: Galvanically isolated. Can be set up as programme change or event input.
 Programme change on High.
 Programme return on Low.
 Event active on positive edge.
 Low: 0 ... 3 Volt High: 7 ... 27 Volt

Control input

Output 1 and 2: Transistor outputs NPN
 Open collector max: 50mA/25 VDC Off in alarm condition
 Output 3: Transistor output NPN
 Open collector max: 50mA/25 VDC
 Switch condition dependent on settings "Standard" or "Inverse"
 Standard: Power on, active (alarm condition) = Off
 Power on, not active (no alarm) = On
 Power off = Off
 Inverse: Power on, active (alarm condition) = On
 Power on, not active (no alarm) = Off
 Power off = Off

Three outputs:

TTY: Formated for *Primo-Bit* data printer
 V24 (RS232): Option

Interface

U_{ext} : + 8 bis + 18,5 V DC (200 mA)

Auxiliary voltage from unit:

Options:**Battery pack in housing (12 VDC)**

2 x 6 Volt / 10 AH (12 VDC in series)
 W x H x D: approx 160 x 300 x 90 mm
 Approx 1.5 m connection cable to the "**liqui-box d 2**"

Battery pack charger

Power supply: 220 ... 240 Volt, 50 / 60 Hz.
 Voltage limit: 13.8 Volt
 Current limit: 3 Amps
 Display: 3 LED (power, polarity, charge control)
 Electrical polarity protection
 Approx. 1 m connection cable to battery pack
 Mains cable with plug L = approx 1.5 m

Others:

Tripod stand, composite container, suspension fitting, all weather roof etc.

Material used (partial)

Controller:	Housing:	PUR compact
	Dosing chamber:	PMMA (option glass)
	- Flange:	PP/PPN
	- Sensors:	1.4305
	Dosing tube:	PVC
	Connection tube:	PP
	Outlet hose:	Silicon
	Pneumatic controller:	
	- Block:	Polycarbonate
	- Gasket:	Silicon
	Distribution:	Polystyrol
	Sample bottles:	Polyethelene / glass
	Bottle tray:	Stainless steel

Technical modifications reserved!

Representations in Europe

Austria

■ Endress+Hauser Ges.m.b.H.
Postfach 173,
1235 Wien
Tel. (0222) 885600-0, Telex 1 14 032,
Fax (0222) 8856 00-35

Belgium/Luxembourg

■ Endress+Hauser S.A./N.V.
Rue Carli Straat 13, 1140 Bruxelles/Brussel
Tel. (02) 2 16 73 00, Telex 24564,
Fax (02) 2 165453

Bulgaria

INTERTECH, Dipl.-Ing. Metodi Stamenov
Alexander-Dimitrov-Str. 15, 4000 Pazardjik
Tel. (034) 5 1074, Fax (034) 245 48

Croatia

Endress+Hauser GmbH+Co., c/o Berhe
Fabrkoviceva 7, 41000 Zagreb
Tel. (041) 41 58 12, Fax (041) 44 7859

Czech Republic

Endress+Hauser GmbH+Co., Pracoviste Ostrava
Varenska 51, 70200 Ostrava 1
Tel. (069) 661 1948, Fax (069) 661 2869

Denmark

■ Endress+Hauser ApS
Poppelgårdvej 10-12, 2860 Soborg
Tel. (31) 673122, Fax (31) 673045

Eire

FLOMEACO Co. Ltd.
Main Street, Clane, Co. Kildare
Tel. (045) 686 15, Fax (045) 681 82

Finland

■ Endress+Hauser Oy
Mikkellänkalio 3, 02770 Espoo
Tel. (90) 859 61 55, Fax (90) 859 60 55

Overseas Representations

Argentina

Servotron S.A.
Av. Belgrano 768, 5 Piso, 1092 Buenos Aires
Tel. (1) 331 0168, Telex 23378, Fax (1) 334 01 04

Australia

GEC
ALSTHOM AUSTRALIA LTD., Industrial Products
25 Princes Road, Regents Park N.S.W. 2143
Tel. (2) 6450777, Telex 20729, Fax (2) 743 70 35

Brazil

SERVOTEC
Av. Dr. Lino De Moraes Leme, 997/999
CEP: 04360 J.D. Aeroporto, Sao Paulo
Tel. (011) 5363455, Telex 5 7411, Fax (011) 536 34 57

Canada

■ Endress+Hauser Ltd.
1440 Grahams Lane, Unit No. 1
Burlington, Ontario L7S 1W3
Tel. (905) 6819292, Fax (905) 681 9444

Endress+Hauser Ltée.
6800 Côte de Liège No. 301
Ville St. Laurent, Quebec H4T 2A7
Tel. (514) 7330254, Fax (514) 7332924

Chile

DIN Instrumentos Ltda., Av. Holanda 2023, Santiago
Tel. (2) 2744230, Telex 240846, Fax (2) 2258139

China

Beijing E+H Equipment, Technical service station
No. A2 Taiping street, Xuan Wu district
P. O. Box 100 050, Beijing
Tel. (1) 301 4866, Telex 222233, Fax (1) 3010347

Hong Kong

■ Endress+Hauser (H.K.) Ltd.
2302 Malaysia Building, 50 Gloucester Road, Wanchai
Tel. 528 3120, Fax 8654171

India

■ Endress+Hauser India Branch Office
301 Sai Nara
21, North Avenue Linking Road Junction
Santacruz (West), **Bombay 400054**
Tel. (22) 604 02 11, Fax (22) 60402 11

Indonesia

PT Grama Bazita, 3rd Floor Multika Building
JL Mampang Prapatan Raya 71-73, Jakarta 12790
Tel. (21) 797 5083, Fax (21) 7975089

France

■ Endress+Hauser
3, Rue du Rhin, BP 150
68331 Huningue (Cedex)
Tel. (89) 69 67 68, Telex 8 81 511 nivo slo
Fax (89) 69 48 02

Germany

■ Endress+Hauser Meßtechnik GmbH+Co.
P. O. Box 2222, 79574 Weil am Rhein
Tel. (07621) 975-01, Fax (07621) 975-555

International sales:

■ Endress+Hauser GmbH+Co. - Instruments International -
P. O. Box 2222, 79574 Weil am Rhein
Tel. (07621) 975-02, Telex 773926, Fax (07621) 975-345

Great Britain

■ Endress+Hauser Ltd.
Ledson Road, Manchester M 23-9PH
Tel. (061) 9980321, Fax (061) 998 18 41

Greece

I & G Building Services Automation S.A.
132 Syngron Avenue, Athens 17672
Tel. (01) 924 1500, Fax (01) 922 17 14

Hungary

MILE-KVENTA, Lonyal u. 15, 1121 Budapest
Tel. (01) 117-02 85, Fax (01) 186-6996

Italy

■ Endress+Hauser SpA
Via Grandi 2/a, 20063 Cernusco S.N. (Mi)
Tel. (02) 92 10 64 21, Telex 322189 nivo i, Fax (02) 92 10 71 53

Netherlands

■ Endress+Hauser B.V., Postbus 5102, 1410 AC Naarden
Tel. (021 59) 586 11, Fax (021 59) 588 25

Norway

■ Endress+Hauser A/S
Doeslasletta 4, Postboks 62, 3408 Tranby
Tel. (032) 85 10 85, Telex 19435, Fax (032) 85 11 12

Japan

■ Sakura Endress Co., Ltd.
3-4-22 Naka-Machi, Musashino-Shi, Tokyo 180
Tel. (0422) 54 06 13, Telex 028-22615, Fax (0422) 55 02 75

Korea

■ Han-Il Level Co., Ltd., 255-2, Nai Dong
Bucheon City, Kyung Gi-Do, Seoul
Tel. (032) 672-3131, Telex 27137, Fax (032) 672-0090/1

Malaysia

■ Endress+Hauser (M) Sdn. Bhd.
No. 37 Jalan PJS 11/2, Subang Indah
46000 Petaling Jaya, Selangor Darul Ehsan
Tel. (03) 7334848, Fax (03) 7338800

Mexico

Maquinaria y Accesorios, S.A. de C.V.
Cincinnati 81, 4-0 Piso, 03720 Mexico, D.F.
Tel. (5) 5638188, Telex 1774217, Fax (5) 6110003

Morocco

TEK Control
17, Ave. des Far, 3me Etage No. 9, B.P. 15893, Casablanca
Tel. 262747, Telex 22662, Fax 266771

New Zealand

Electric Measurement+Control Ltd.
171-175 Target Road, Glenfield, Auckland 9
Tel. (9) 4449229, Fax (9) 444 11 45

Pakistan

Abgurt (Pvt.) Ltd.
63, 4th Fl. Luxmi Bldg., M.A. Jinnah Rd. Karachi-400
Tel. (21) 2436579, Telex 21 068, Fax (21) 241 05 13

Philippines

Brenton Industries Inc.
2nd Floor JM Bldg., South Super Highway Cor
Rockefeller St., Makati, Metro Manila
Tel. (2) 886646, Telex 22463, Fax (2) 817 57 39

Saudi Arabia

Intrah International Trading House
P.O.Box 326, Damman 31411/K.S.A.
Tel. (3) 834 7879, Fax (3) 834 48 32

Poland

DJ+UT Sp. z o.o., Reprezentant firmy Endress+Hauser
ul. Rydygiera 8, 01-793 Warszawa 86
Tel. (02) 6 338480, Telex 8 15887, Fax (02) 6 338492

Portugal

Tecnisis
Rua Elisa Sousa Pedrosa, 2-1-F. Apartado 512 Carnaxide
2795 Linda a Velha, Tel. (1) 4 17 26 37, Fax (1) 4 18 52 78

Romania

Ing. Cheorge Cioboata
Str. Cetatuaia 10, Bloc. 25/1, 77535 Bucuresti
Tel. 16350350, Telex 11 958

Slovenia

Endress+Hauser GmbH+Co.
Gerbiceva 101, 61111 Ljubljana
Tel. (061) 264 190, Fax (061) 123 11 80

Spain

■ Endress+Hauser, S.A.
Constitucion, 3, Bloque A., 08960 Sant Just Desvern
Tel. (3) 4734644, Fax (3) 473 38 39

Sweden

■ Endress+Hauser AB
Bergkällavägen 24 A, Box 7006, 19107 Sollentuna
Tel. (08) 6261600, Telex 11 608, Fax (08) 6 26 94 77

Switzerland

■ Endress+Hauser AG
Stemenhofstr. 21, 4153 Reinach/BL 1
Tel. (061) 7156222, Fax (061) 7 11 16 50

Turkey

INTEK Endüstriyel Ölçü ve Kontrol Sistemleri
Vildiz Posta Cad. AS Sitesi, B/1 Gayrettepe, Istanbul 80680
Tel. (1) 275 1355, Fax (1) 2662775

Singapore

■ Endress+Hauser (S.E.A.) Pte., Ltd.
215 Upper Bukit Timah Road,
3rd Storey, Courtaulds House, Singapore 2158
Tel. (065) 4688222, Telex 3 6229, Fax (065) 4666848

South Africa

■ Endress+Hauser Pty. Ltd.
5 Commerce Crescent West, Eastgate Ext. 13,
P.O.Box 783 996, Sandton 2146
Tel. (011) 444 1386, Telex 4 31 119 sa, Fax (011) 444 1977

Sultanate of Oman

Mustafa & Jawad, Trading Co., LLC., P.O. Box 4918, Ruwi
Tel. 709955, Telex 3731, Fax 564005

Taiwan

Kingjari Corporation
9 F-2 No. 307, Tung Hwa N. Road, Taipei R.O.C.
Tel. (2) 7 129889, Fax (2) 7 134190

Thailand

■ Endress+Hauser Ltd.
Wangdek Building 1C/D Floor
19/1-2 Vipavadi-Rangsit Road
Lardyao, Chatuchak, Bangkok 10900
Tel. 66-2-2723674-5, Fax 66-2-2723673

United Arab Emirates

MUSTAFA & JAWAD TRADING CO., P. O. Box 50998
803 Zener Building, Jumbo Roundabout, Dubai
Tel. (4) 520118, Telex 4 7 820 mujat, Fax (4) 52 15 09

Uruguay

CEMI Ltda., San Jose 1179, Of. 302
P.O. Box 6330, Montevideo 11100
Tel. (2) 926754, Telex 901 pboothuy, Fax (2) 926963

USA

■ Endress+Hauser Inc.
2350 Endress Place, P.O.Box 246
Greenwood, Indiana 46 142
Tel. (317) 535-7138, Telex 27-2 195 (level grwd)
Fax (317) 535-7223

Venezuela

H.Z. Instrumentos, C.A.
Edif la Piramide, Local 20-A
Urb. Prado Humbolt, P.O. Box 61.429, Caracas 1060-A
Tel. (2) 9798813, Telex 2 8583, Fax (2) 97996 08

06. 94/MTM

■ Members of the Endress+Hauser group

BA 038R/09/e/11.95
Part No. 500 51409
Printed in Germany

Endress+Hauser

Nothing beats know-how

