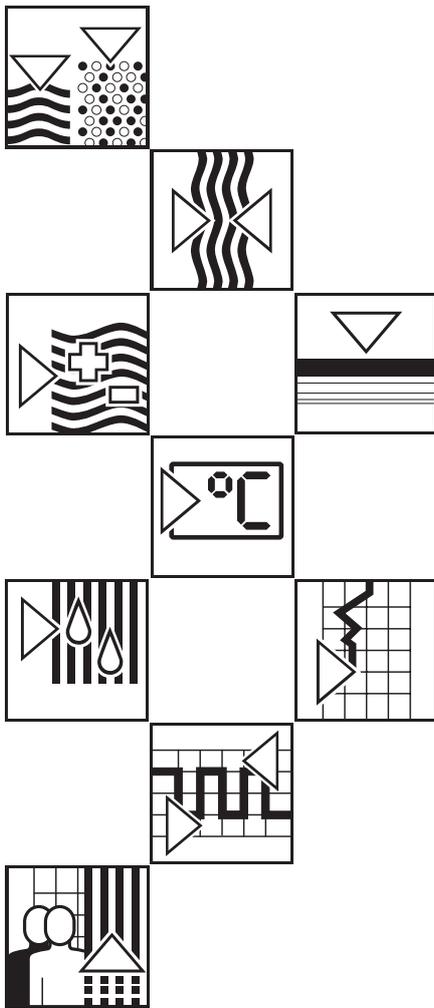


# asp-port d 2 se *Self emptying water sampler*

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 se" be in storage for more than 6 months please take note of the storage details in chapter "**Maintenance, general**".

**Please enter details here:**

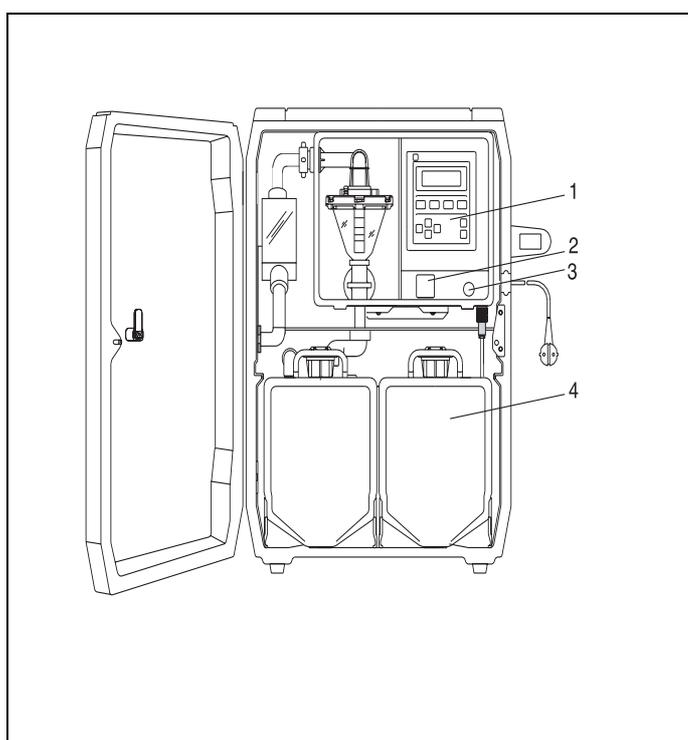
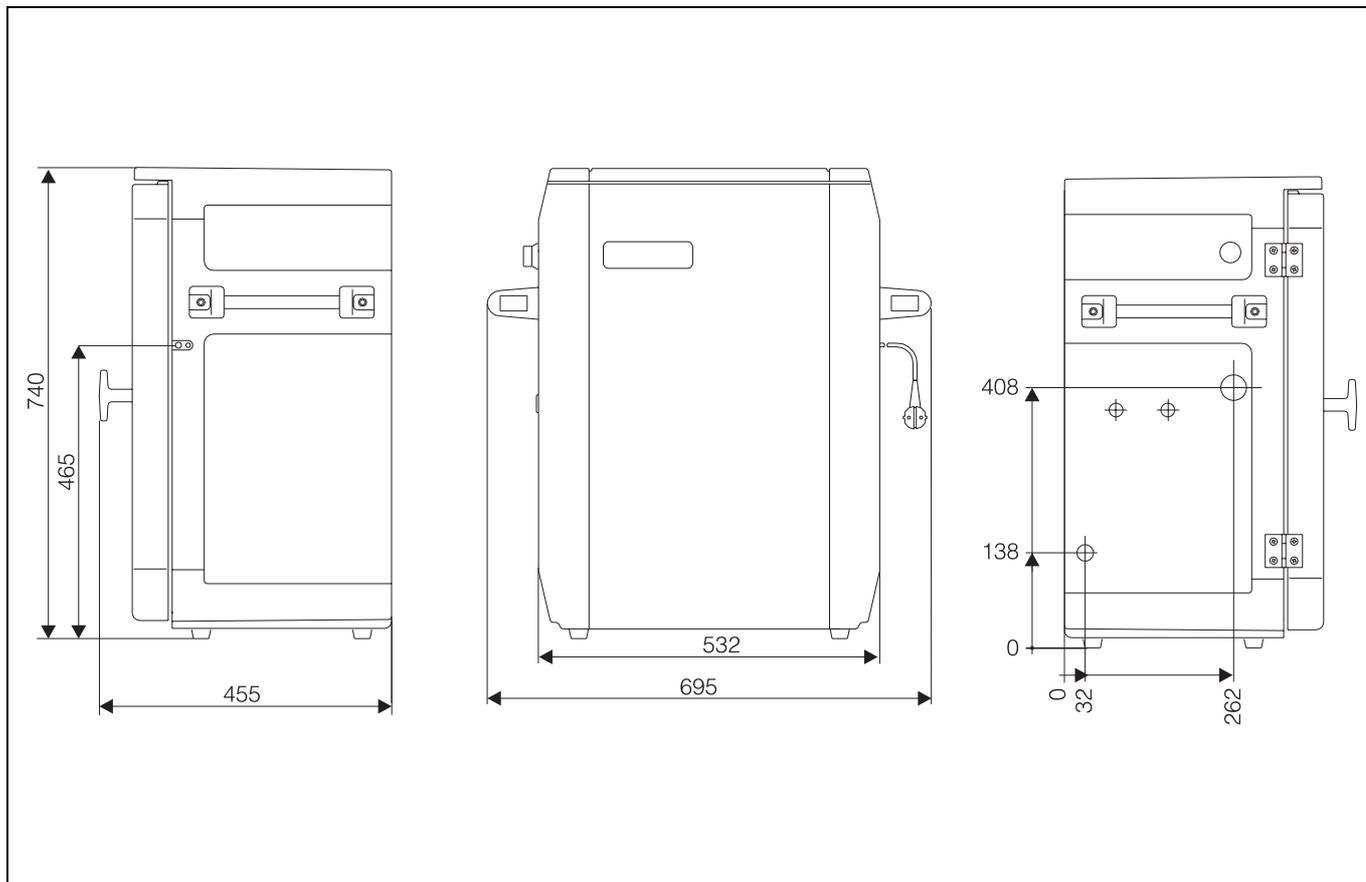
Unit number: \_\_\_\_\_

Software version: \_\_\_\_\_

Door key number: \_\_\_\_\_

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

**Dimensional drawing,  
complete unit**



**Sampler asp-port d 2 se:**

- 1 = Controller liqui-box d 2
- 2 = Power supply
- 3 = Signal socket
- 4 = Containers

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- Transport insurance	1
- Enter unit information	1
<b>asp-port d 2 se</b>	
- Dimensional drawing and complete construction	2
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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.

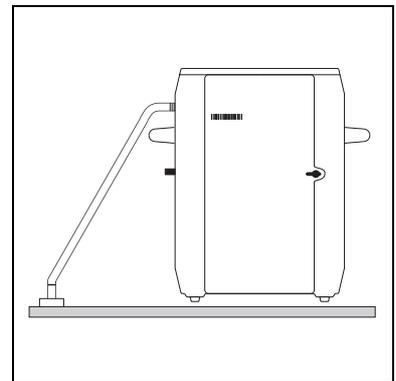
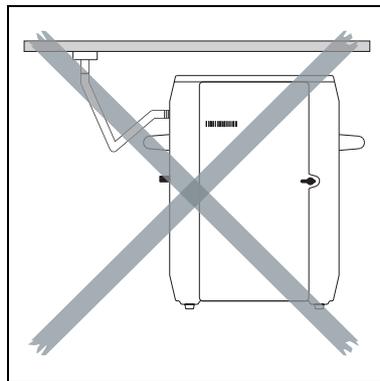
**Hose connection / installation**

The suction hose must be installed so that it always **rises** from the sampling. When connecting the sampler to a pressurised system (max. 0.6 bar) use the shortest pipelines possible (because of blowout time, danger of soiling etc.)

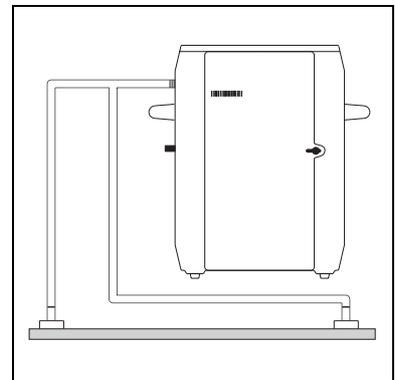
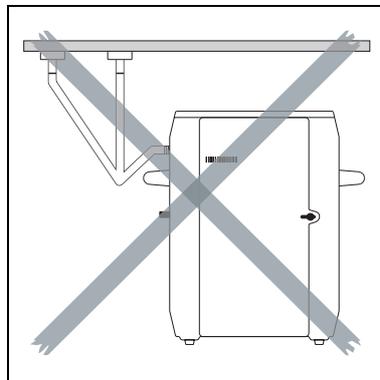
Wherever possible connect direct to the sampler. If a by-pass system is to be used connect as in bottom right hand sketch. The short pipe between sampler and by-pass will ensure a representative sample.

**Syphons must be avoided between the sampling point and sampler !**

**Standard one pipe connection**



**Connection as by-pass**



**Wrong**

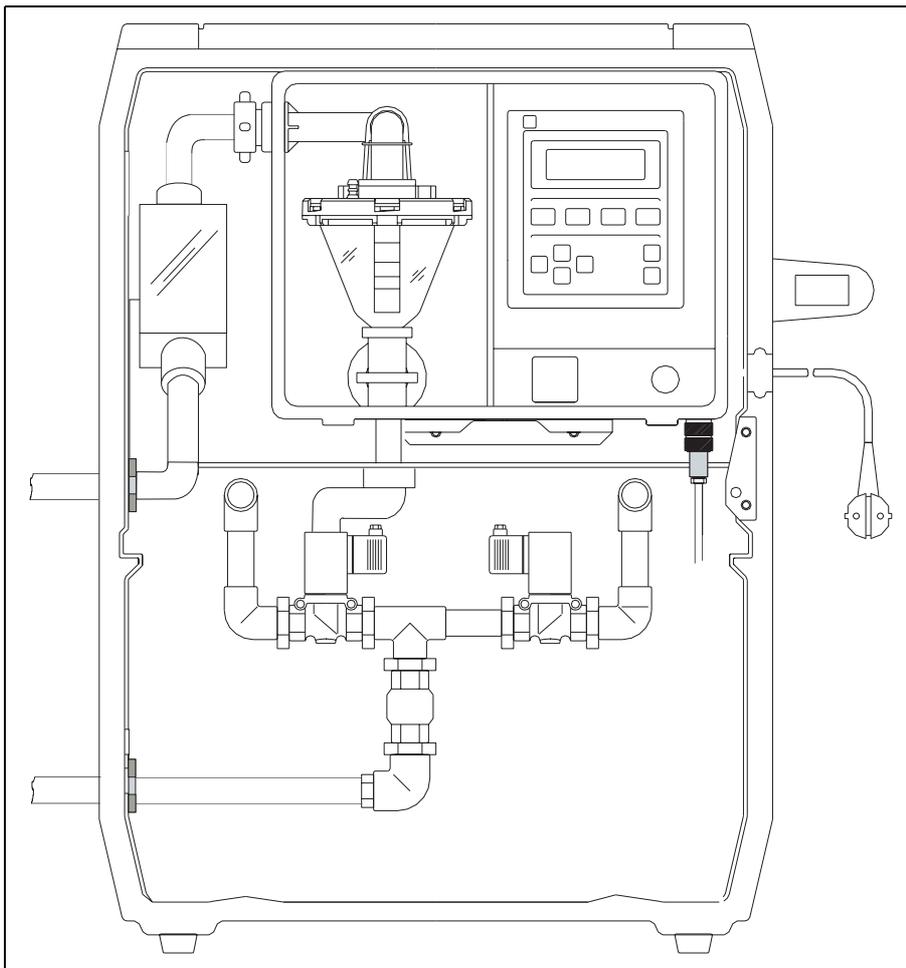
**Right**

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

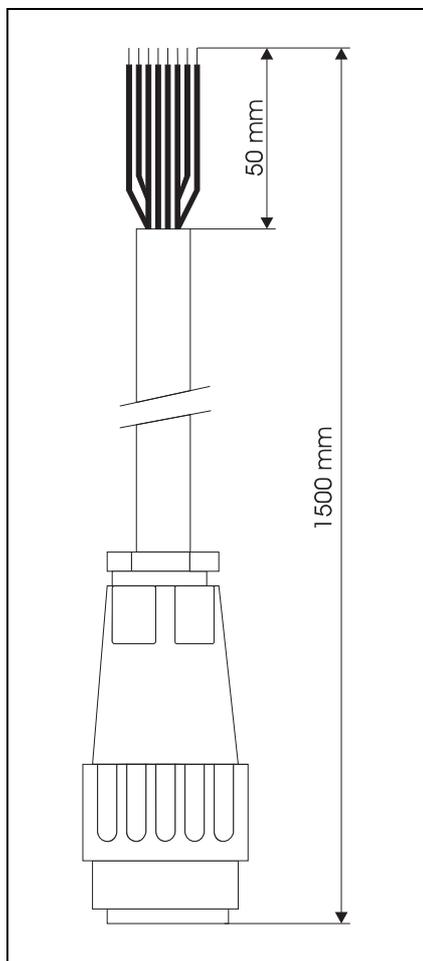
Rinse water connection can be found inside the unit housing behind the left hand container, for access both containers must be removed. External pipework can be laid as required. Pipe size is 3/4", ID 19 mm. The minimum water pressure must not be below 1 bar and the maximum water pressure must not exceed 4 bar.

### Rinse water pipe connection



## In/outputs

### Signal socket connections (Signal socket E)



White	=	1	=	Auxiliary voltage (-) 0 V (common)
Brown	=	2	=	Auxiliary voltage (+) 20 to 30 V output
Green	=	3	=	Flow impulse input
Yellow	=	4	=	External stop input/distribution control
Grey	=	5	=	Do not connect
Pink	=	6	=	Output 1
Blue	=	7	=	Output 2
Red	=	8	=	do not connect
Black	=	9	=	Auxiliary voltage (+) 20 to 30 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

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.

## Outputs

**Transistor Outputs 1,2 and 3** is dependent on the settings "standard" or "inverse" in address 150 to 152.

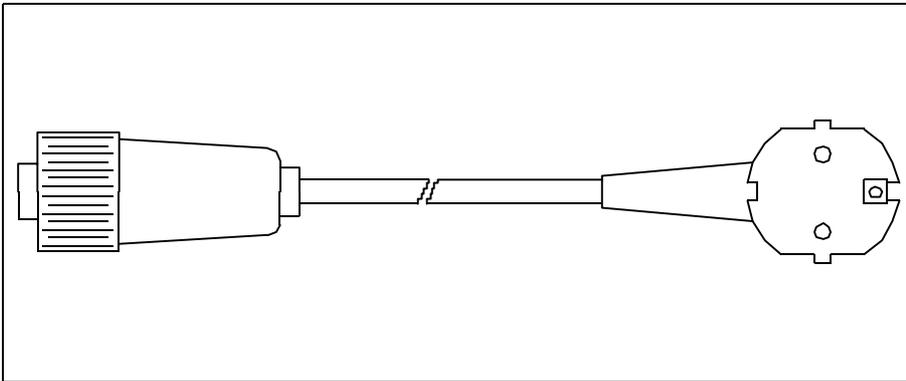
Standard: Open in "Alarm" and "Power off" and conduct in "Normal operation".

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

## 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)       = Green/yellow (PE)

**This page was left empty for notes:**

**Inputs**

**1 Impulse input** (Pin 3, green). Max.25Hz (+12 to +30 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 +12 to +30 Volt on the input stops all sampler functions.  
0 Volt (or open circuit) to +3 Volt initiates normal operation.

In all programmes the distribution can be controlled by this input (Adr. 2x3).  
A voltage between +12 to +30 Volt in the input starts the cleaning process and the tape will move afterwards, if the Address 2x3 is set to "ext. signal".

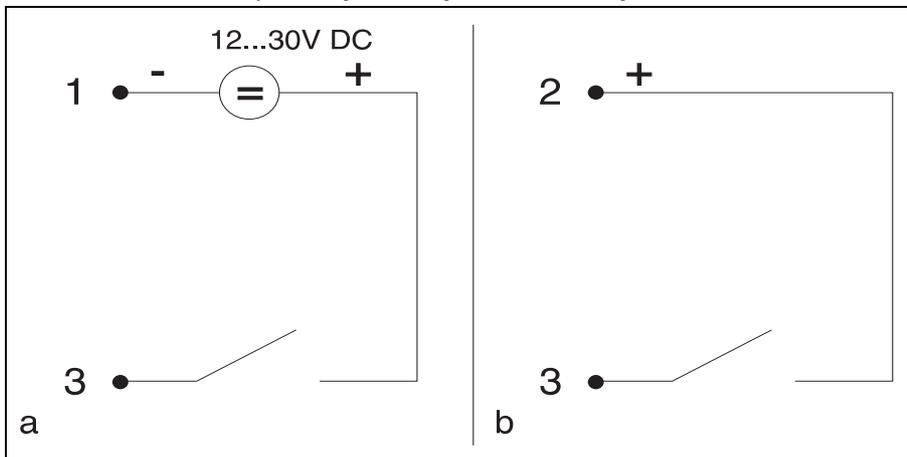
**1 control input** (Pin 13 white/green via optocoupler).  
Presettable as programme change or event input.

Condition: Address 270 is set to "**ext. signal**".  
A voltage of +12 to +30 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.

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



**a:** Using external aux. voltage

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

**Flow impulse inputs**

**Analogue flow input**

**External stop**

**Control input**

... for programme change

... as event input

**Interface (TTY *Primo-Bit*)**

**Connection examples**

## What happens on power up ?

### Power failures

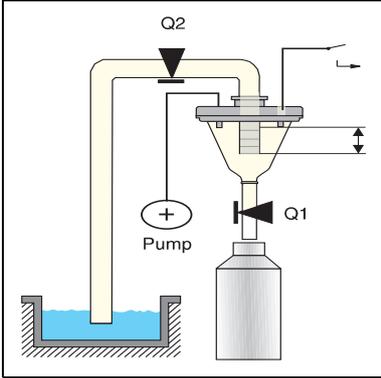
- a) The unit runs a self check (start up). Display shows "**Unit OFF**".
- b) **Short term** power failures (<24 hrs) during automatic operation  
No samples are taken, the inputs are not interrogated, however, the internal clock continues to run during power failure.  
On return of power the unit initiates 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.

### On/off switching using the ON and OFF push buttons

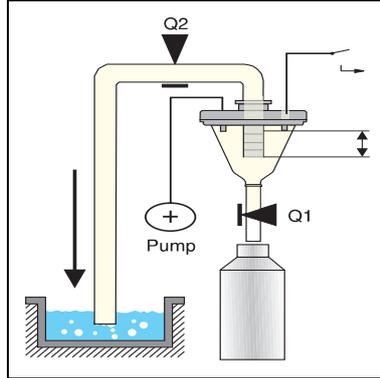
Switch off (operate **OFF**): This aborts the automatic cycle. Display shows "**OFF**". The unit should not be switched off during a sample cycle, always wait until the unit has completed the cycle. The sampler is switched off but still connected to the mains supply therefore heating (option) continues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

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

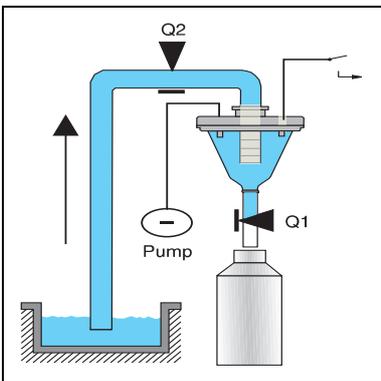
**Vacuum principle**



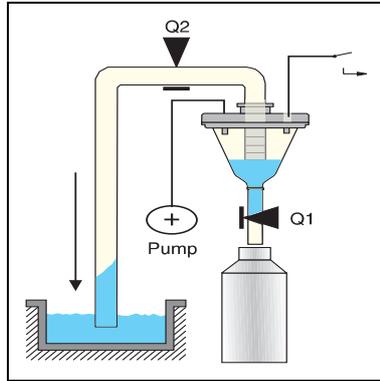
**1** The dosing system is pneumatically sealed (hose clamp 1 and 2 closed) at the beginning of each sample cycle. The diaphragm pump then fills the dosing chamber with positive pressure.



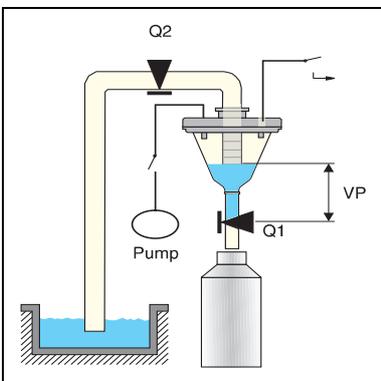
**2** Hose clamp 2 opens and the suction hose is blown free of obstructions and any excess fluid.



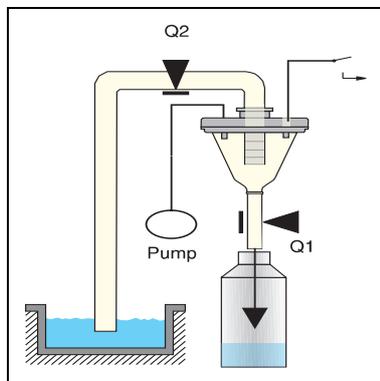
**3** A fresh sample is then sucked or if under pressure transferred into the dosing glass until the conductivity sensors (L) are active. These sensors are fitted to the dosing chamber flange.



**4** The sample is now dosed to the preset volume (VP) required. This is dependent on the position of the dosing tube (D). This is done using positive pressure from the pump.



**5** Once the sample has been dosed clamp 2 closes and pressure is released from the dosing chamber by opening a bleed valve (V4) in the air pipe.



**6** Hose clamp 1 is then released and the sample flows into one of the composite containers.

**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 and 127 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

"**asp-port d 2 se**" if fitted externally with 2 containers and 24 hour filling time per container.

On synchronisation time of 00:00 (addr. 127) each container is allocated a fixed filling time independently from the time of the automatic sequence start.

**Time synchronisation example:**

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**").



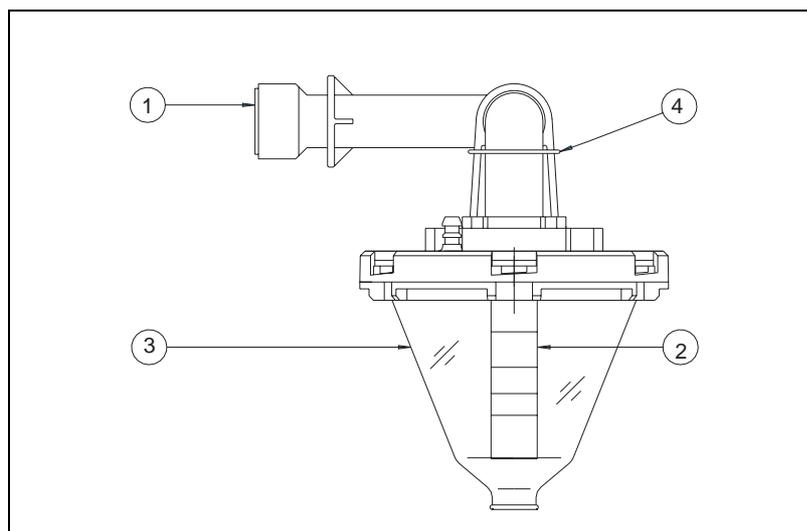
**Varying sample volume**

Follow the next steps.

**1. Open cabinet door****2. Switch unit off**

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

Dosing system:

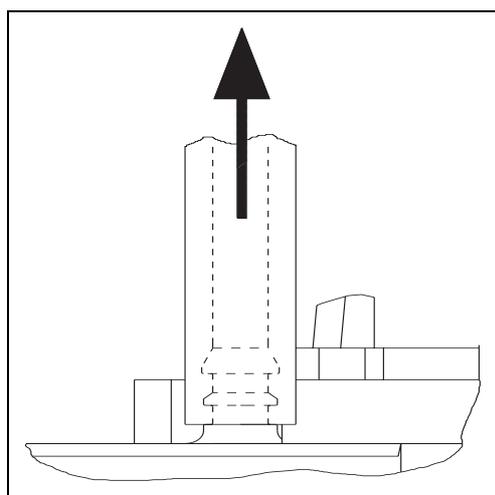


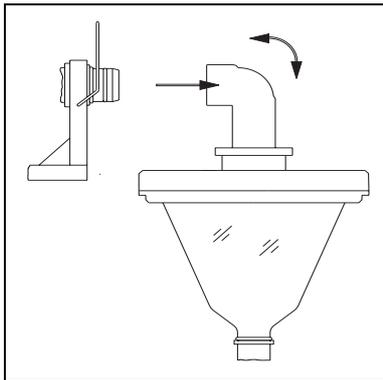
① = Elbow

② = Dosing tube

③ = Dosing chamber

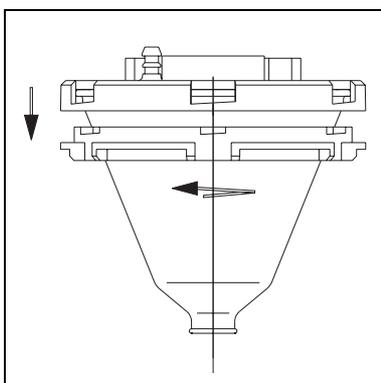
④ = Piping clamp

**3. Remove air hose**



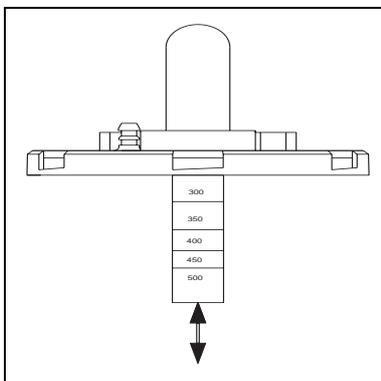
Lift clamp from pipe elbow.  
Pull dosing system forwards and remove from controller.

**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**



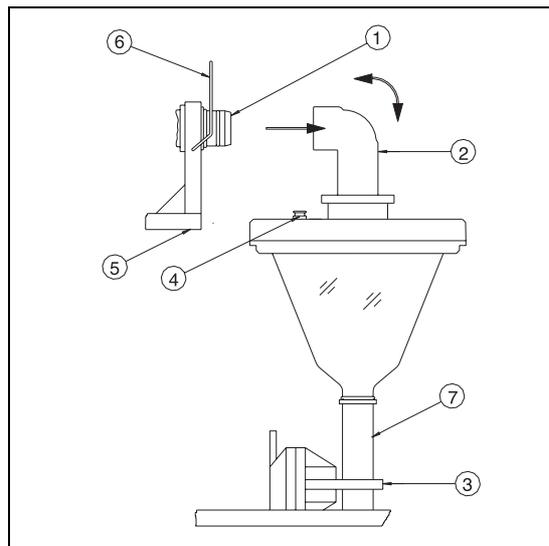
Set the dosing tube to the required sample volume by pushing it in or out. Take note of the engraved quantities on the tube. (The further the tube is pulled out of its retainer the smaller the sample volume)

**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.

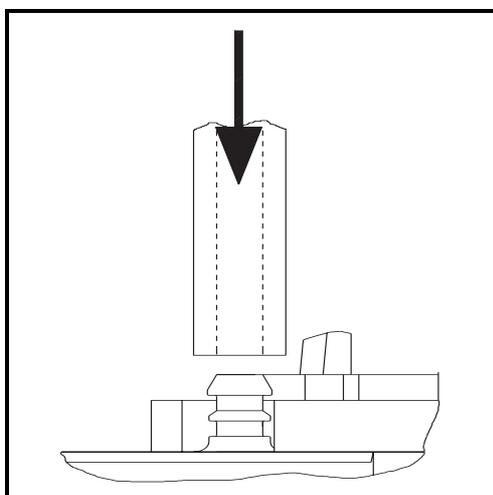
Push suction pipe elbow ② onto the nipple ①.  
(Make sure that the spring contacts and flange contacts are made).

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 se** regularly. Clean the outside cabinet using a mild soap preparation.

Clean the distribution tap with a mild soap cleaner (do not use solvents, spirits, etc.).  
In order to clean the distribution tap, pull the tap downwards from the Liqui-box.

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 se** 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

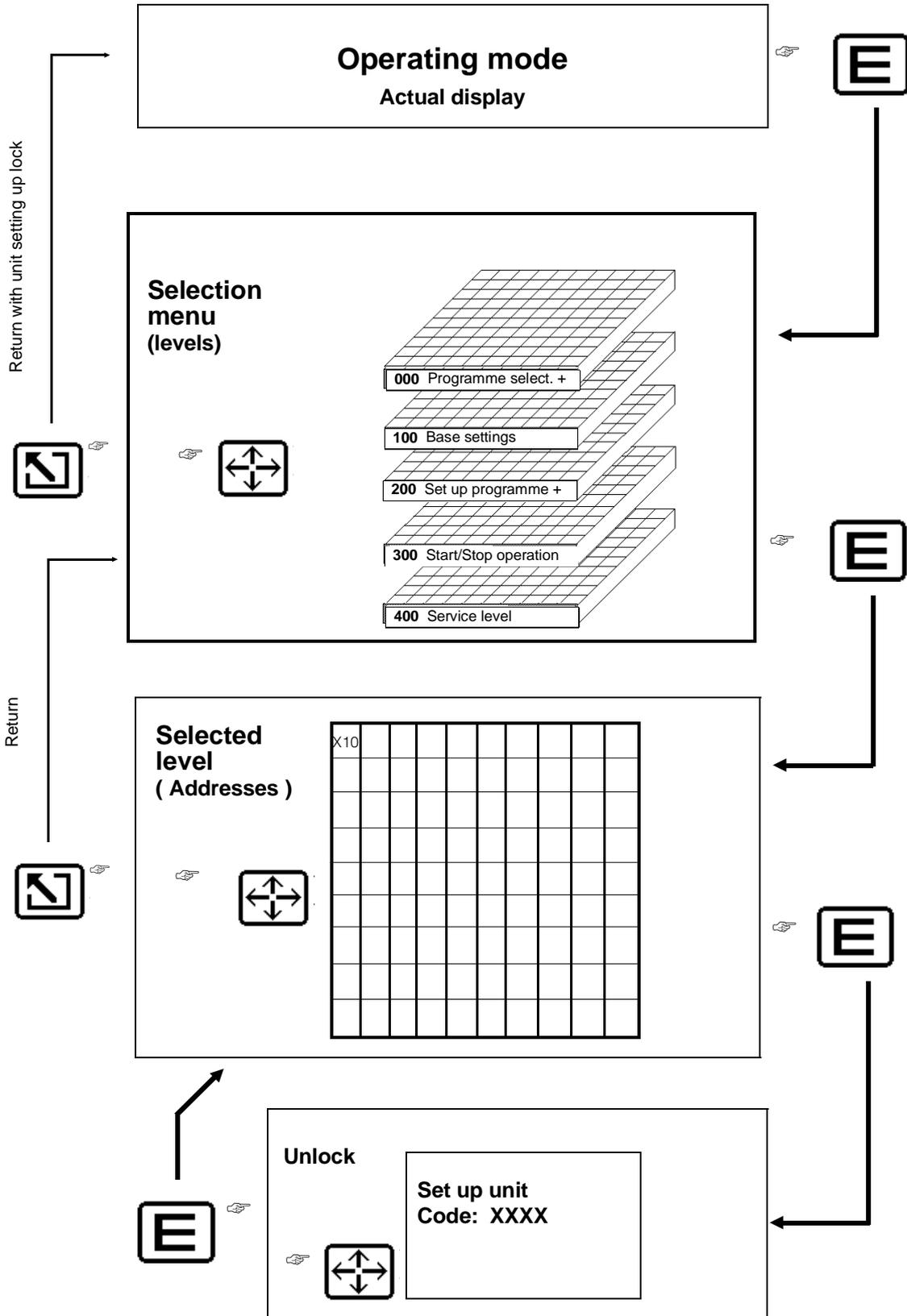
## Repairs

## Cleaning the asp-port d 2 se



## 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)

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

- 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).

- 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.

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

**Setting up principle**

**Enter push button:**



**Home push button:**



**Arrow push buttons:**



**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.

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**Programme selection and information**

<p><b>010</b> Programme select A</p> <p>One, from programme 1 to 6 since: date/time</p>	<p><b>011</b> Print parameters</p> <p>Yes or No</p>								
<p><b>020</b> Power failures</p> <p>Number and minutes</p>	<p><b>021</b> Power failure time, last:</p> <p>from Date/time to Date time</p>	<p><b>022</b> External stops</p> <p>Number: 4 digit counter</p>	<p><b>023</b> External stop time, last:</p> <p>from date/time to date/time</p>	<p><b>024</b> Control input active</p> <p>Number: 4 digit counter</p>	<p><b>025</b> Control input last:</p> <p>from date/time to date/time</p>				
<p><b>030</b> Sample counter</p> <p>Number: 6 digit counter</p>	<p><b>031</b> Not taken samples</p> <p>Number and last on date/time</p>	<p><b>032</b> No flow</p> <p>Number: 4 digit counter and last: on date/time</p>	<p><b>033</b> Info counter per container</p> <p>Container XX Sample No. No.sam start. No flow</p>						
<p><b>040</b> Actual flow</p> <p>in l/sec or m<sup>3</sup>/h 4 digit</p>	<p><b>041</b> Temperature display</p> <p>Target: °C Act: °C Heat/cool</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 <sup>3</sup> /h
041	Target and actual temperature in the sample bottle surroundings. Display whether heating or cooling is active.	xx°C

**Base settings**

<b>110</b> Sample volume  Set up range: <b>0...500 ml</b>	<b>111</b> Bottle volume  Set up range: <b>00,0...99,9 l</b>	<b>112</b> Cleaning times  Empty: 1...120s Rinse: 1...120s	<b>113</b> Empty cycle start  0...99	<b>114</b> Container Cleaning  No. # 1 # 2	<b>115</b> Door open counter  6 digits resettable				
<b>120</b> Self optimising sample phases  <b>ON / OFF</b>	<b>121</b> Blow out time (Phase 1)  Set up range: <b>0...15 sec.</b>	<b>122</b> Suction time (Phase 2)  Set up range: <b>10...360sec</b>	<b>123</b> Dosing time (Phase 3)  Set up range: <b>5...150 sec.</b>	<b>124</b> Sample delay  Set up range: <b>0...100 sec.</b>	<b>125</b> Conductivity sensitivity  <b>low middle high</b>	<b>126</b> Synchronisation  <b>AUT / time</b>	<b>127</b> Synchronisation time  <b>Hours 00 .. 24 Minutes 00 ... 60</b>		
<b>130</b> Thermostat  <b>On / Off</b>	<b>131</b> Preset temperature  <b>0...30 °Cels.</b>	<b>132</b> Automatic defrost  <b>Yes / No</b>	<b>132</b> Defrost time  Range <b>1 ... 999 min. Cycle range 2 ... 999 min.</b>						
<b>140</b> Select signal input type  <b>Analogue Impulse None</b>	<b>141</b> Select analogue input <b>0...20mA 4...20mA 0...1 V 0...10V</b>	<b>142</b> Set analogue input values  <b>l/Sec or m<sup>3</sup>/h Range: 1...9999</b>	<b>143</b> Set analogue input value decimal point  <b>Without, after 1. to 3. points</b>	<b>144</b> Set impulse input values  <b>l/Impulse or m<sup>3</sup>/Impulse 1...9999</b>	<b>145</b> Set impulse input values decimal point  <b>Without, after 1. to 3. points</b>				
<b>150</b> Set up output 1  <b>One from eight pos. see description</b>	<b>151</b> Set up output 2  <b>One from eight pos. see description</b>	<b>152</b> Set up output 3  <b>One from eight pos. see description</b>							
<b>160</b> Select interface  <b>Primo-Bit or Option</b>	<b>161</b> Print sample report  <b>On or Off</b>	<b>162</b> Print parameter report on start  <b>On or Off</b>	<b>163</b> Installation name (unit identifier)  <b>10 digit selectable</b>	<b>164</b> Serial unit address  Selectable: <b>00...99</b>	<b>165</b> Select interface type  <b>TTY / (V24)</b>	<b>166</b> Set Baudrate  Selection <b>300 / 600 / 1200 / 2400</b>	<b>167</b> Select parity  Selection <b>odd / even / mark / space</b>	<b>168</b> Select Stop-Bit  Selection <b>1 / 2</b>	<b>169</b> Display of number of data Bits  <b>7</b>
<b>170</b> Date  2 digits each <b>Day, month, year</b>	<b>171</b> Time  Hours <b>00...24</b> minutes <b>00...60</b>	<b>172</b> Summer/normal time changeover  <b>automatic/ manual/ switched off</b>	<b>173</b> Advance (1h) NT → ST  Selection: <b>Day, month, year; hour, minute</b>	<b>174</b> Reverse (1h) ST → NT  Selection: <b>Day, month, year; hour, minute</b>					

Addr.	Description	Works settings
110	Set up the same dosing volume as on the filling tube in the dosing chamber	200 ml
111	Set up single bottle / container volume (-10% for safety) (Addr. 110/111 operate as bottle overflow security).	10,0 l
112	Set up the times in the various cleaning cycles. Empty: time for emptying the container Rinse: time during which water is used	30 s 30 s
113	The number of samplers before container change when the cleaning and drain cycle of the new container starts. Important when distribution operates on number of samples per container. Presetable from 0 - 99	2

114	Selection of manual container cleaning cycles. Selections are: no, # 1, # 2	NO
115	The number of times the door is opened is counted.	
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
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 <sup>3</sup> /h	1000 m <sup>3</sup> /h
143	For analogue input. Set decimal point for the above value.	None
144	For impulse input. Set up litre or m <sup>3</sup> per impulse (dependent on transmitter).	-
145	For impulse input. Set decimal point for the above value.	-
150	Relay output 1 selection: <input type="checkbox"/> Signal during container change (Distribution tap running) <input type="checkbox"/> Signal during sampling (see Addr. 124) <input type="checkbox"/> Acknowledgement of external stop input <input type="checkbox"/> Automatic sequence end (last bottle/container is full). Signal active until next automatic start sequence. <input type="checkbox"/> Error signal "No flow". Signal active until next sample cycle. <input type="checkbox"/> Error signal "Electrodes 1/" (conductivity electrodes) dirty. Signal active until (cleaned) acknowledged. <input type="checkbox"/> All error signals and faults = cumulative alarm. <input type="checkbox"/> Not used. Switch function selectable as "Standard" or "Inverse".	Probe 1/2 Soiled  "Standard"
151	Relay output 2 selection as above (Addr. 150) Switch function selectable as "Standard" or "Inverse".	Sample "Standard"
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.	-



Address	Description	Works settings
210	<b>Programme 1:</b> (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.	<b>Timed</b>
211	Time proportional sampling: Set up time between each sample cycle.	<b>15 min.</b>
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, number of samples released or external Signal initiates a change to next bottle.	<b>Timed</b>
214	Set up time for distribution tap change to next bottle.	<b>2 hours</b>
215	Set up number of samples to be taken before distribution tap change to next bottle.	-
220-225	Set up <b>programme 2</b> (see Addresses 210-215).	<b>See matrix</b>
230-235	Set up <b>programme 3</b> "	"
240-245	Set up <b>programme 4</b> "	"
250-255	Set up <b>programm 5</b> "	"
260-265	Set up <b>programme 6</b> "	"
270	<b>Programme change</b> (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".	<b>Not active</b>
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 !!!).	<b>Yes</b>

**Start / stop operation**

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

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

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. <b>(Note: We the manufacturer cannot accept any liability, this includes guarantee claims for any damage occurring).</b>
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 <span style="float: right;">Name</span>

**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.

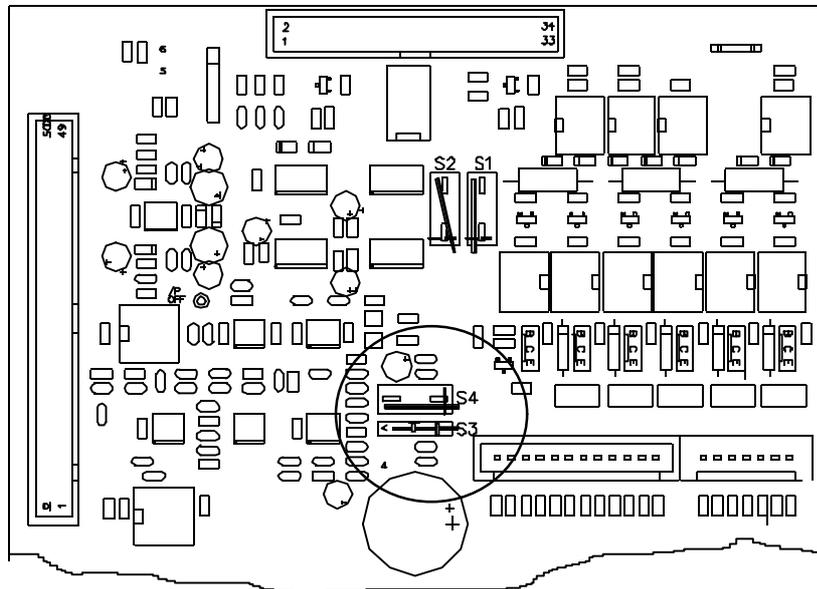
This change should only be done by skilled personnel.

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	 Switch 1 2
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 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 messages

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 <b>E+H Service</b> .
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 !
<p><b><i>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 !</i></b></p>		
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 <b>E+H Service</b> .
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.

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

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.



**Spare parts**

<b>Description</b>	<b>Order code</b>
<b>Cabinet and external components:</b>	
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
Signal plug with 1.5 m cable	50046599
<b>Dosing system and pneumatic:</b>	
Dosing chamber 200 ml	50072149
Outlet silicon hose	50082981
Clip for silicon hose	50031087
Hose clamp	50042508
Hose clamp diaphragm	50031633
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
Pump spare parts set	50076467
Airmanager	50082980
<b>Distribution systems / bottle trays:</b>	
Distribution drive	UE-SDF
Toothed drive belt	50082977
Gear for drive belt	50033228
Complete distribution tap:	386022100
15 l container, left side	286030010
15 l container, right side	286030020
Drain valve	286030100
Rinse valve	50053856
Rinse and drain pneumatic housing compl.	386027000

**Please give order code when requesting prices or ordering components !**

Hard polyurethane foam  
H x W x D approx. 725 x 532 x 400 mm

**Cabinet:**

Approx. 30 kg

**Weight:**

Controller (Keypad): IP 55 to DIN 40050

**Protection class:**

Without heater    +0°C ... +40°C  
With heater        -15°C ... +40°C

**Allowable ambient temperature:**

>0°C ... +50°C

**Allowable medium temperature:**

≥ 30 μS/cm (others optional)

**Minimum liquid conductivity:**

230 V AC + 10% -15%, 50/60 Hz or

**Power supply:**

AC version:                Without heater 50 W

**Power consumption:**

To VDE 0411 Part 1 protection class I, overvoltage categorie II

**Safety:**

To EN 50082-1

**EMC/immunity:**

To EN 55011, class A (Industrial surroundings)

**RF:**

Up to 500h during power failure  
(condition: powered for at least 7 days previously)

**Data security:**

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**"

**Security code number:**

Built in diaphragm pump

**Feed system:**

Feed height:        max. 6m            at 1013 hPa  
Feed distance:    max. 30m           at 1013 hPa  
Suction velocity:  0.6m/sec,  
                          13 mm diameter hose

**Feed conditions:**

20 ml to 200 ml presettable (option 350ml)

**Sample volume:**



Controller:	Housing:	ABS	<b>Material used (partial)</b>
	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:		PVC	
Sample bottles:		Polyethelene	

***Technical modifications reserved!***

## Europe

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□ Endress+Hauser Ges.m.b.H.  
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Tel. 01/ 88056-0, Fax 01/ 88056-35

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