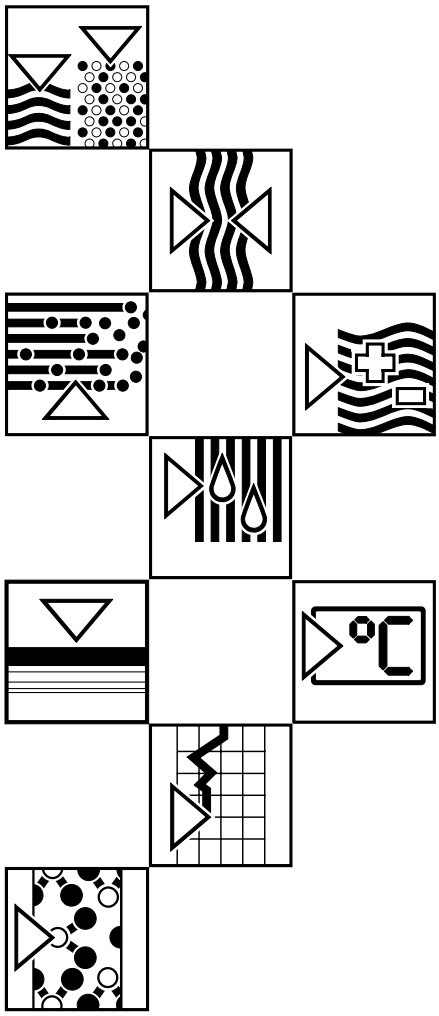
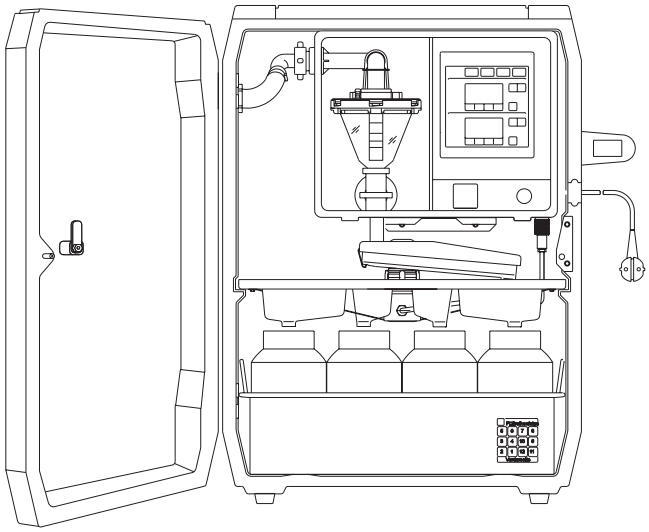
BA 037R/09/e/11.95
Part No. 50051403

Water sampler
asp-port a 2

Installation and operating instructions





Endress+Hauser

Nothing beats know-how

Complete delivery

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

Transport insurance

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.

Please take note of the following characters:

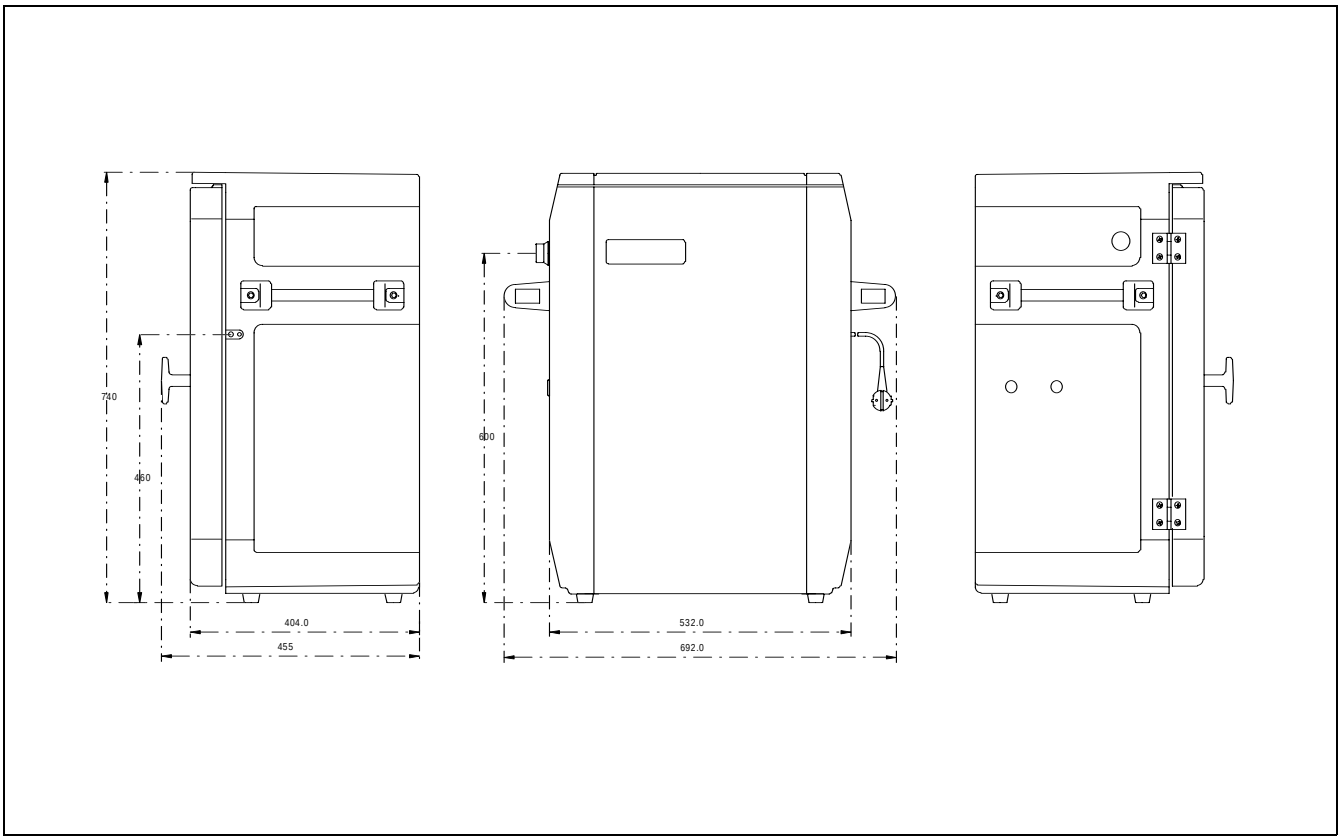
Hint: Hints for better installation.

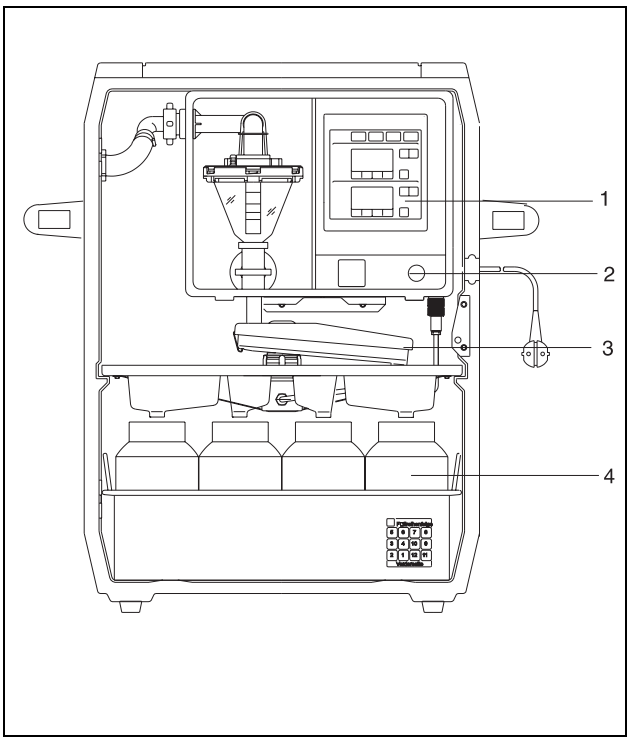
Attention: Ignoring this note can lead to damage of the device or faulty operation.

Danger: Ignoring this warning can lead to personal injury.

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

Dimensional drawing,
complete unit





Sampler asp-port a 2:

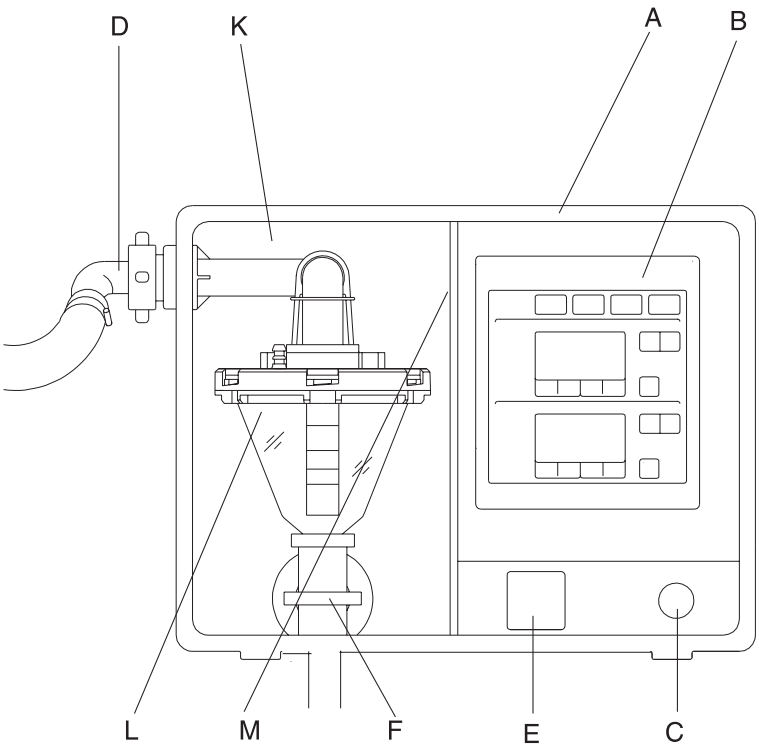
1 = Controller liqui-box a 2

2 = Cable entry

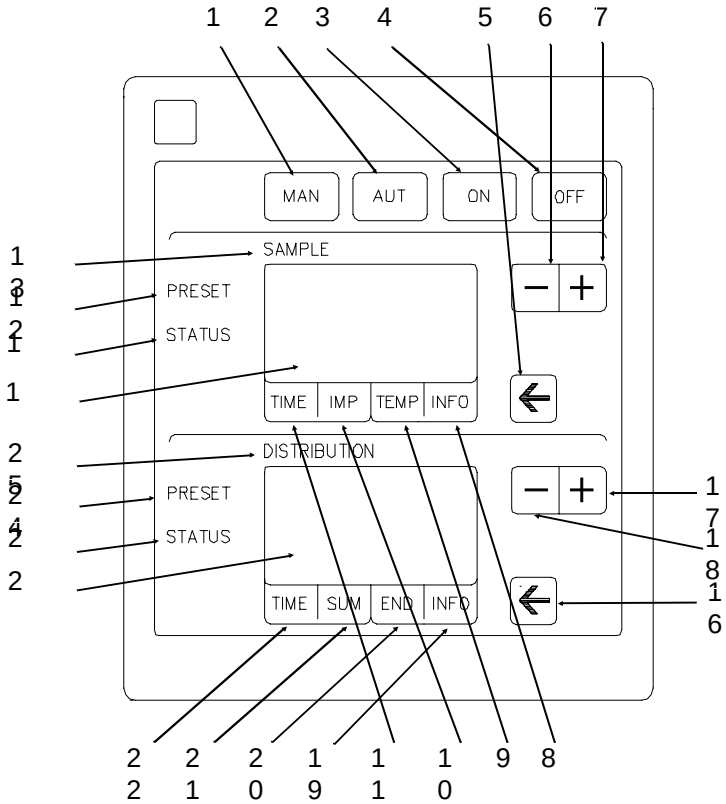
3 = Distribution tray (tap and tray)

4 = Bottle tray with bottles and lids.

Liqui-box a 2 construction



Operating and display elements



"liqui-box a 2" construction

A	Housing
B	Display and operating components
C	Power supply socket
D	Elbow connector (for suction hose)
E	Signal in and output socket
F	Hose clamp
K	Wet compartment
L	Dosing system
M	Legend plate (unit number, supply voltage, power consumption of functional module)

Operating elements and display

1	**MAN**-push button:	Immediate sample start
2	**AUT**-push button:	Automatic sample sequence start
3	**ON**-push button:	Switches unit on
4	**OFF**-push button:	Switches unit off
5	⇐ push button:	Operation mode selection
6	**-** push button:	Reduce target value
7	**+** push button:	Increase target value
8	**INFO**- display field:	Information (pump running times etc.)
9	**TEMP**- display field:	Cabinet temperature display (only on heater option)
10	**IMP-** display field:	Quantity proportional sampling
11	**TIME-** display field:	Time proportional sampling
12	**PRESET**	Sample and temperature target values
13	**SAMPLE**	Sample selection (heading)
14	Sampling display fields (total)	
15	**STATUS**	Sample and temperature actual values
16	⇐ push button	Operation mode selection
17	**+** push button	Increase target value
18	**-** push button	Reduce target value
19	**INFO**- display field:	Information (samples not taken)
20	**END**- display field:	Sample sequence end or continuous operation
21	**SUM**- display field:	Number of samples per container
22	**TIME**-display field:	Fill time per container
23	**STATUS**	Actual value for sample sequence end
24	**PRESET**	Target value for sample sequence end
25	**DISTRIBUTION**	Sample distribution (heading)
26	Sample sequence end and distribution display fields (total)	

Safety

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.

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 made 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.

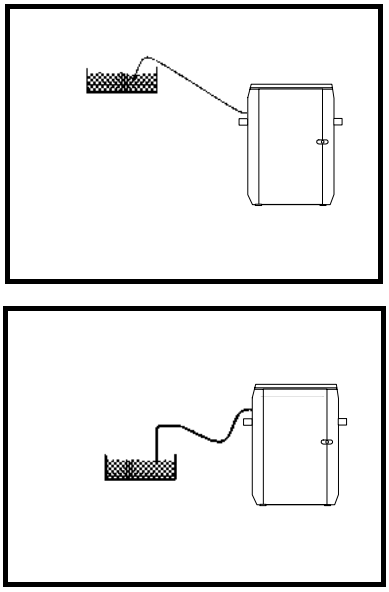
Installation

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

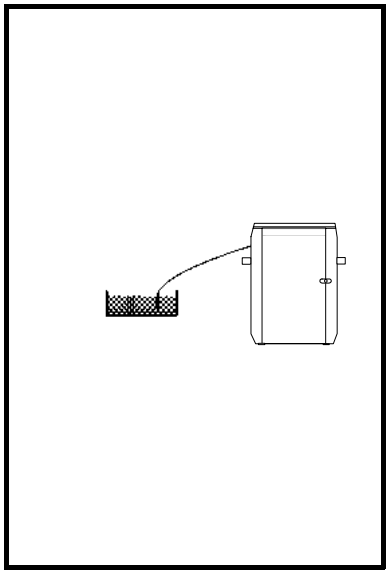
Do not install the sampler close to large magnetic fields (eg. motors, transformers, large contactors, etc). Do not install the sampler in areas where it can be subject to high mechanical vibration. Avoid shocks when transporting the sampler.

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

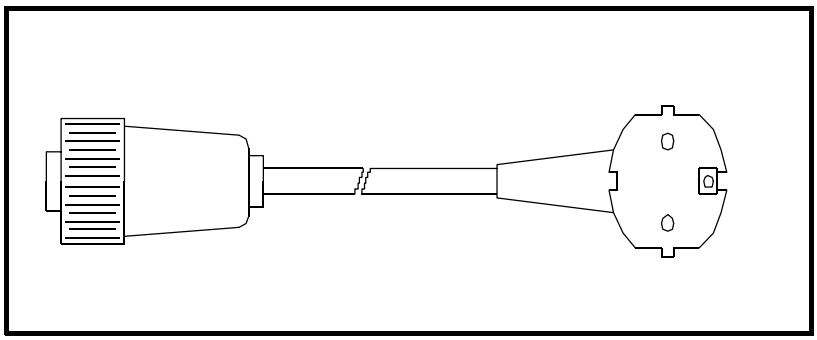
The sampler must not be connected to a **pressurised system !**
For sample lift less than 2 m we recommend using a 15 mm suction hose. Both 13 mm and 15 mm connections are delivered.
The minimum conductivity of the sample liquid must not be less than **30 microsiemens !**

- The 13 mm internal ∅ 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 into socket C and tighten using nut. Pull out cable entry “4” and lay the mains cable inside.

Mains version (AC)

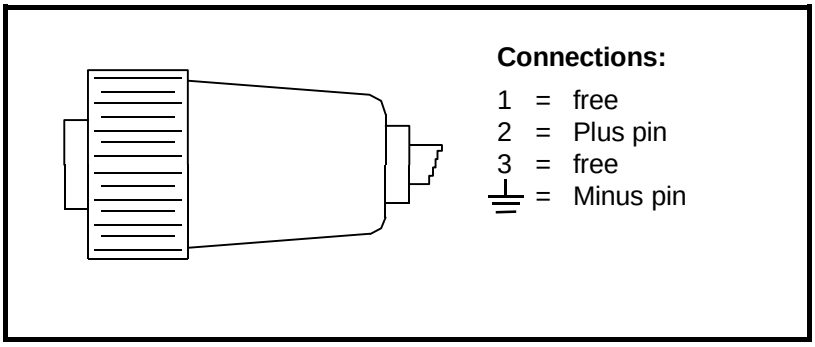


Plug connections: Numbers are engraved on the plug

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

Direct current version (12 VDC)

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

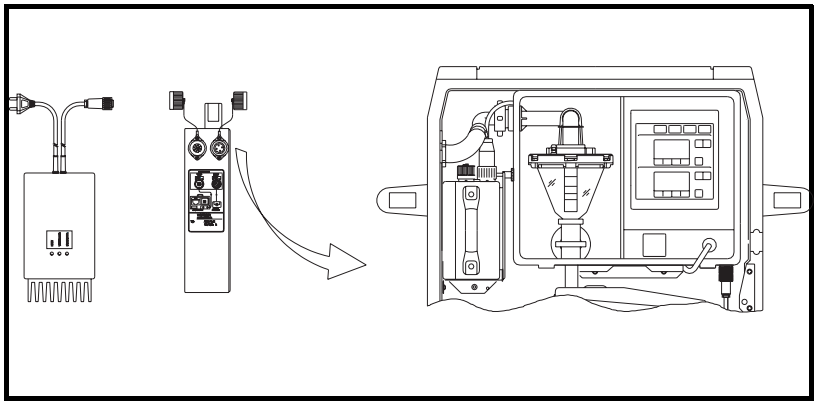


Only connect safe voltages.

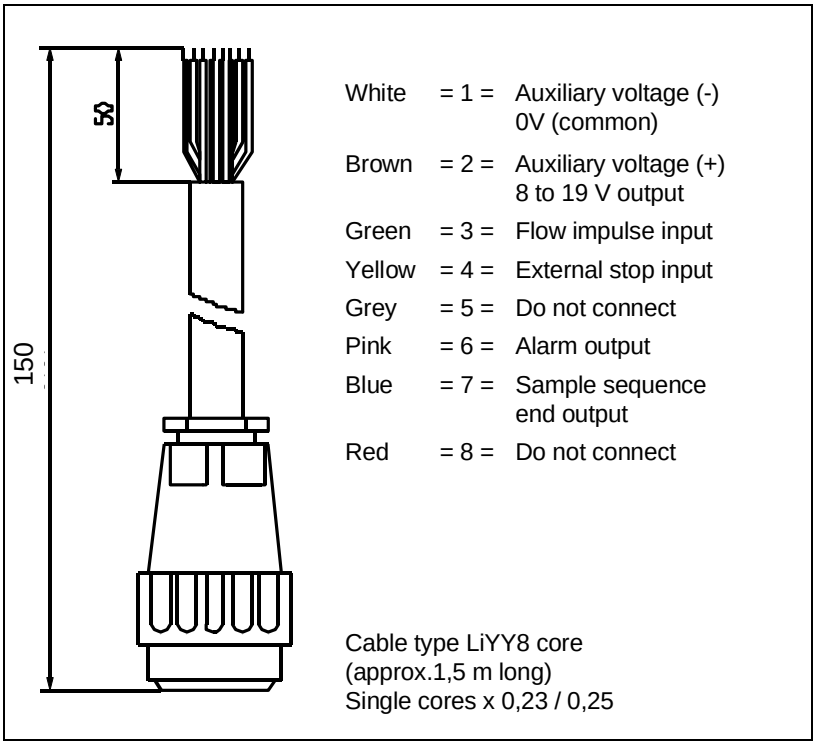
Always maintain the batteries used (i.e. regularly charged, recharge straightaway after long term use). Please take note of safety notes in separate instructions ! Disconnect "asp-port a 2" from battery pack when storing. Store battery pack in a cool area and recharge at least every 6 months.

Option "Battery pack / charger" "asp-port a 2" 12 VDC:

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



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 =	Alarm output
Blue	= 7 =	Sample sequence end output
Red	= 8 =	Do not connect

Cable type LiYY8 core
(approx.1,5 m long)
Single cores x 0,23 / 0,25

Outputs

2 outputs for alarm and sequence end are available from the controller. These are in the form of an open-collector output and are not switched when active (in alarm) or during a power failure.

Sequence end

Sequence end is signalled after the last time the hose clamp has opened:

- When the preset sampling sequence has finished.
- On power failure.
- Sequence end is de-activated once a new sampling sequence programme or countdown is started.

Alarm

The output signals alarm, fleeting contact ≥ 30sec. :

- If a fault occurs during sampling.
- The respective error message appears in the display.
- See chapter **”Problems and solutions”**.

Inputs

Flow

1 Impulse input (optocoupler) max. 25Hz. For connection to an external quantity measurement.

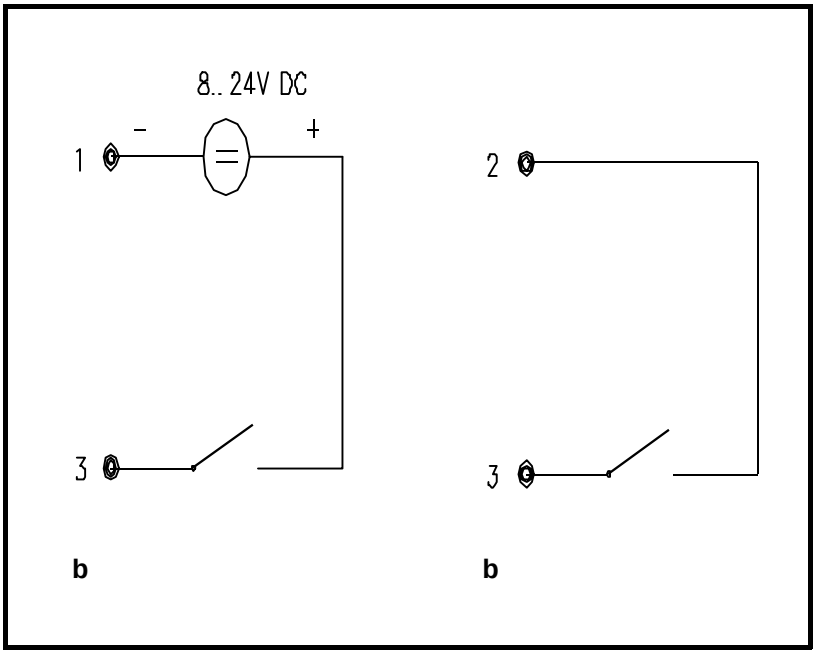
External stop

1 Stop input (opto-coupler). A voltage of between +7 to +27 Volts on the input stops all **"asp-port a 2"** functions.
0 to +3 Volts initiates restart of the unit (The status display restarts at zero and the next sample is taken once the target value is reached). For further description of this function see chapter **"Interrupt / restart sample cycle"**.

Connection examples

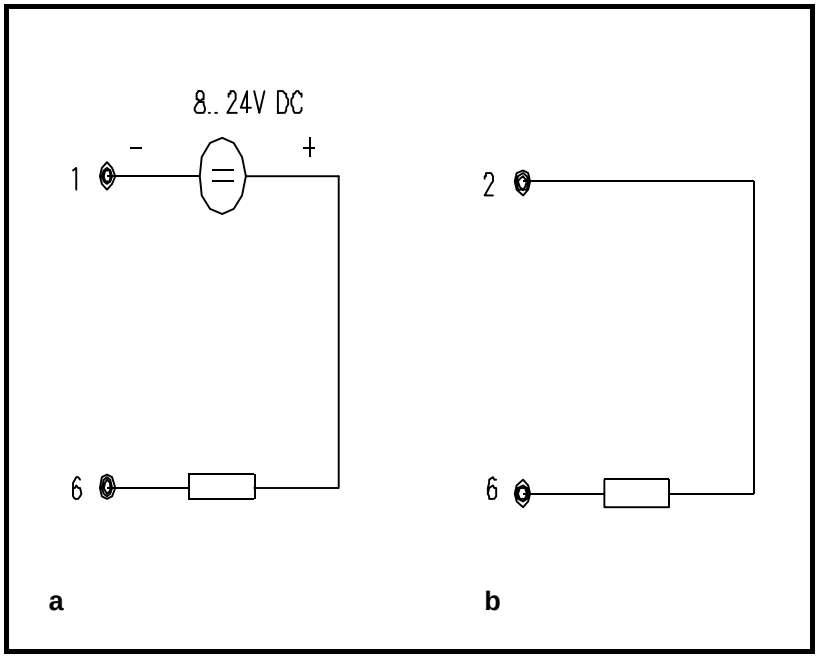
Input

Alternatives: In example **"Flow input".**



Output

Alternatives: In example **"Alarm output"**



a: Using external auxiliary voltage source

b: Using internal auxiliary voltage source

What happens on power up ?

a) The display shows **"INIT"**, unit does a self check (start up). Display shows **"OFF"**, start **"asp-port a 2"** by operating push button **"ON"**. The unit continues to operate using the preset data from before power failure. If required reset data and start by operating the “AUT” push button.

Power failures

b) Sort term power failures during operation: The **"asp-port a 2"** continues to operate normally after power resumption. The auxiliary voltage is not available during power loss, (the inputs continue to be scanned). Samples are not taken, but the internal electronics continue to operate and samples that should have been taken are counted in the **“INFO”** counter, (see chapter **“Further inromation available”**). Missed distribution bottle changes are caught up on return of power.

c) Long term power failures (internal buffer accumulator discharged): The error message **“E09PrES”** is displayed and the distribution arm moves to the zero position (between last and first bottle) on return of power. Operate the **“OFF”** push button followed by the “ON” push button. Set up lost operation data and restart the system from the first bottle by operating the **“AUT”** push button. Note: The internal buffer accumulator is automatically recharged on power resumption.

d) Only when using **"asp-port a 2"** in 12 VDC version ! When connection operational voltage (12 VDC power source, accumulator or battery) to the unit the display shows **"EOA Akku"**. This must be acknowleged by operating the **"OFF"** followed by the **"ON"** push button.

Switching on and off using the “ON”/”OFF” push buttons

a) Switch off (operate the **“OFF”** push button: This switches the operating cycle off. This should not be done whilst the unit is sampling, always wait until the end of the cycle. The display shows **“OFF”** and the sampler is switched off (even though mains power is available). The heater, if fitted, continues to operate.

b) Switch on (operate the **“ON”** push button): Display shows **“END”**. The sampler can be restarted (using new data if required). The sampler starts the sampling sequence using the first bottle (container).

Operating elements

See drawings of the functional module at the front of these instructions
(**"Operating components and display"**)

Operating principle

"ON" push button

Push button **”ON” (3)** activates the ***"asp-port a 2"*** controller
- The display shows the last operation sequence values.

"OFF" push button

Push button **"OFF" (4)** switches the ***"asp-port a 2"*** off.
- The display **(14)** shows **"OFF"**

” ⇐” push button

Push buttons **” ⇐”** (**5** and **16**) change the mode of operation
- Display arrowhead ▼ changes to the next field.
- Display arrowhead ▼ flashes for a few seconds, then the new settings are accepted (always wait for the arrowhead to stop flashing).

"+" and "-" push buttons

Push buttons **”+”** (**7** and **17**) and **”–”** (**6** and **8**) change the target value (**12** and **24**)
- Simultaneous operation of **"+"** and **"–"** changes the display to auf **0001** (Reset).
- If the target value is changed the arrowhead ▼ flashes.
- Once the arrowhead ▼ is stable the new values are accepted and stored.

"AUT" push button

Push button **”AUT” (2)** starts an automatic sampling sequence.

Count down

"Count down" to sample sequence start:

If the "**AUT**" (**2**) push button is operated for more than approx **5** seconds the upper display indicates “hold” and a preset counter value of “0001”. Whilst this counter is being set to the required delay time the arrowhead ▼ flashes.
Once the arrowhead is stable the counter counts down in a minute cycle. The sampler is now blocked. Once 0000 is reached the sampler starts automatic sample operation using the preset sampling data.

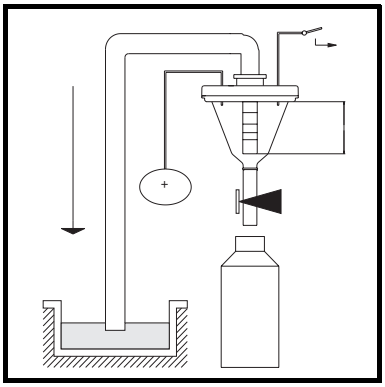
"MAN" push button

Push button **"MAN" (1)** initiates an immediate sample cycle.

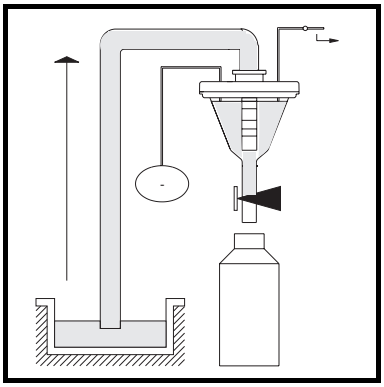
Note: All values are memorised for at least 48 hours during a power failure (via internal accumulator).

Sampling principle

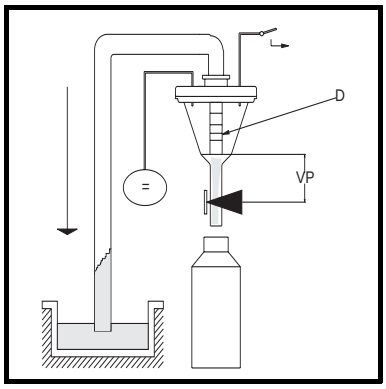
Vacuum principle



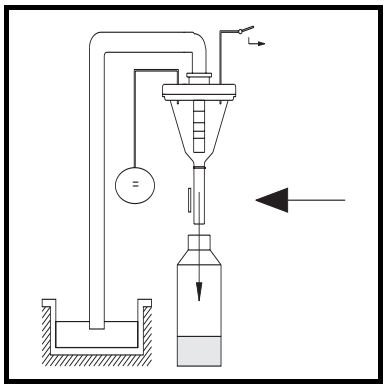
1 The dosing system is pneumatically sealed at the beginning of each sample cycle. The diaphragm pump then blows the suction hose free of obstructions via the dosing chamber



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.

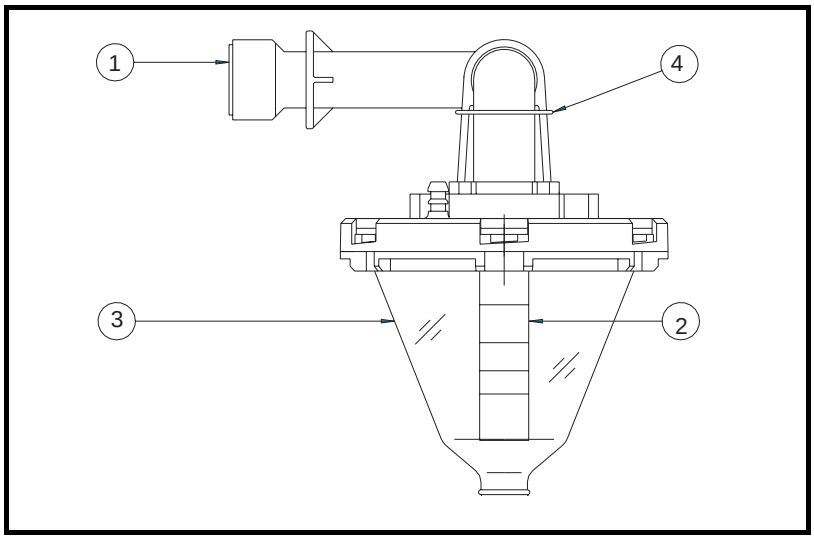
Varying sample volume

Follow the next steps.

1. Open cabinet door

2. Switch unit off

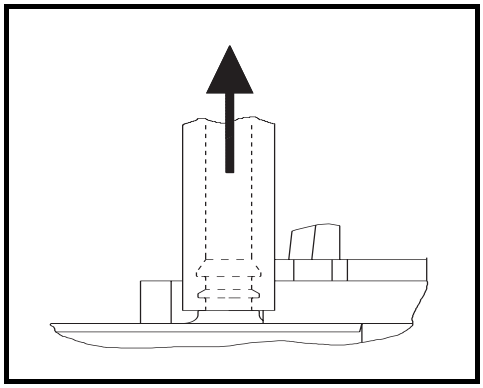
Operate the **- OFF- (4)** push button at the "asp-port a 2".

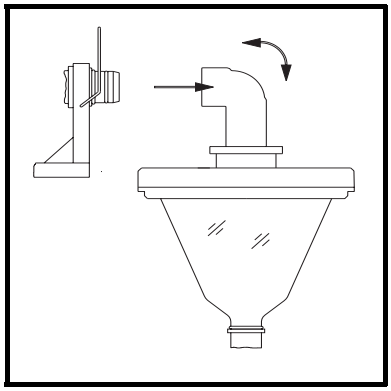


Dosing system:

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

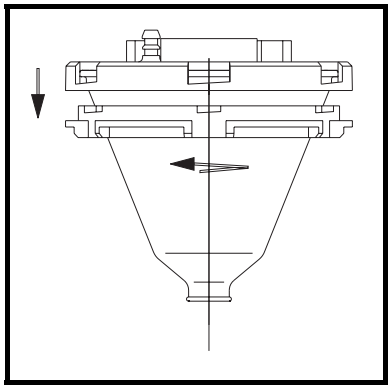
3. Remove air hose





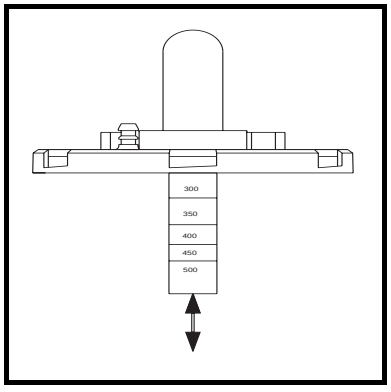
Lift clamp from pipe elbow. Pull dosing system forwards and remove from controller.

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)

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

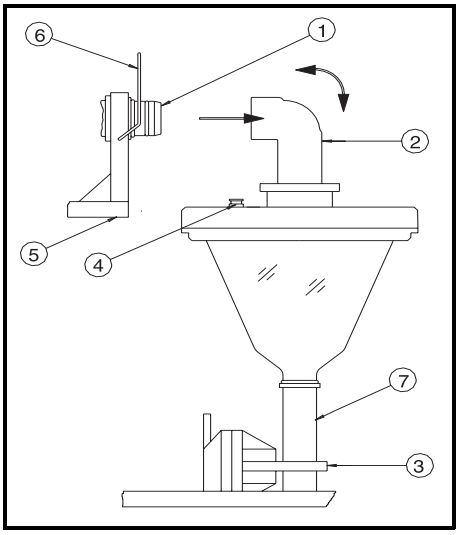
6. Set sample volume

Use the following calculation in order to avoid overfilling the sample containers:

Preset sample volume x number of samples = Container volume

7. Dosing system

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

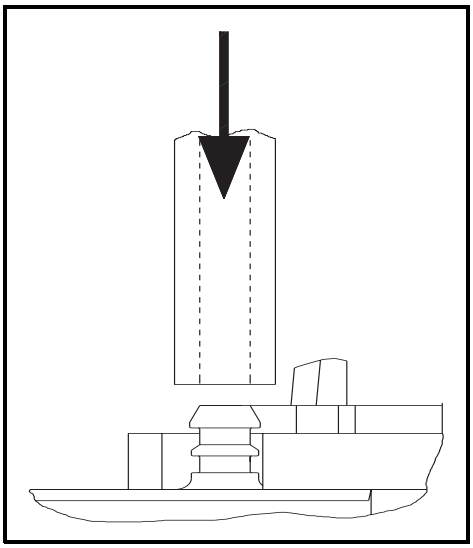


- Push silicon hose ⑦ into the hose clamp ③.
- Push suction pipe elbow ② onto the nipple ①. (Make sure that the spring contacts and flange contacts are made).
- Push fixing bracket ⑥ downwards.

"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



Methods of sampling

Manual sampling

Operate push button **MAN.**

Starts an immediate sample cycle

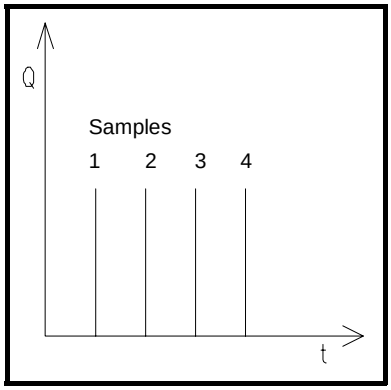
This can be done as often as required and can be repeated at any time.

Automatic sampling

One of three possible sampling methods can be selected

a) Time proportional sampling
b) Quantity proportional sampling
c) Event controlled sampling

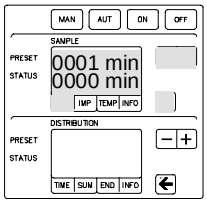
a) Time proportional sampling



Q = Sample volume
t = Time intervals

Principle:

Samples of identical volume are taken in preset identical time cycles. Time spans of 0001 min. to 9999 min. are possible.



Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **TIME** .

Set the time span between each sample cycle in minutes using push buttons **-** or **+.**

Continuous operation of push buttons **-** or ***+*** causes the numbers in the display to scroll at a faster speed.

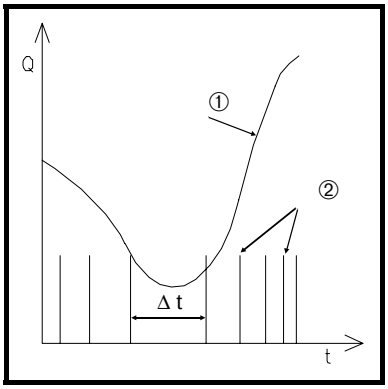
The controller has accepted and stored the new values once the arrowhead ▼ over the display field ***TIME*** has stopped flashing.

Do not select a sample time span smaller than the time it takes to complete a sample cycle.

Continue with **"Setting up bottle change"** and **"Setting up sequence end"**.

b) Quantity proportional sampling

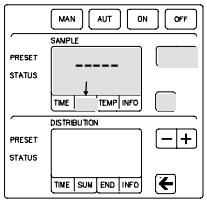
Q = Quantity (Flow)
t = Time
Δt = Time interval
① = Flow rate
② = Samples



Here an external flow meter with an impulse output must be connected to pin 3 (green) in the signal plug. The flow meter transmits quantity proportional impulses to the sampler. When the flow rate varies the sample cycles are initiated at varying time intervals:

More flow = More samples
Less flow = Fewer samples
(Volume per sample is always constant).

Sample start is presettable between 0001 and 9999 impulses.



Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **IMP** .

Using push buttons **-** or **+** set the number of impules (target value) at which a sample cycle is to be initiated.

Continuous operation of push buttons **-** or ***+*** causes the numbers in the display to scroll at a faster speed.

The controller has accepted and stored the new values once the arrowhead ▼ over the display field ***TIME*** has stopped flashing.

Do not select a sample time span smaller than the time it takes to complete a sample cycle.

Continue with **"Setting up bottle change"** and **"Setting up sequence end"**.

c) Event controlled sampling

An external signal initiates an immediate sample cycle.
(Connect to pin 3 (green) in the signal plug).

Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **IMP** .

Using push buttons **-** or **+** set the target value of **0001**.

Continue with **"Setting up bottle change"** and **"Setting up sequence end"**.

Setting up bottle change

Only used with sample distribution and not with composite container.

Filling a sample bottle tray starts by placing the first sample in the first bottle in the tray.
The number of samples per bottle or the filling time per bottle is presettable.
Once this preset value is reached the distribution tap moves to the next bottle.
This sequence is repeated until all bottles have been filled.

... on time base

Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **TIME** .

Set the required time in minutes using push buttons **-** or **+.**

Effect (after sample start):
The status value increases by one each minute.
Once the status value reaches the preset value the distribution tap moves to the next bottle.
The status display is reset to zero and the sequence is repeated.

Continue by following the instructions in section "Setting up sequence end"

or

... on number of samples taken

Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **SUM** .

Set the required number of samples per bottle using push buttons **-** or **+.**

Effect (after sample start):
The status value increases by one after each sample cycle.
Once the status value reaches the preset value the distribution tap moves to the next bottle.
The status display is reset to zero and the sequence is repeated.

Continue by following the instructions in section "Setting up sequence end"

Set up and operate the sampler in such a way that there is no danger of the bottles overflowing. We do not accept any liability for damage caused through neglect !

Multiplying the dosing volume by the number of samples to be taken per bottle (container) equals the container volume.

Or dividing the bottle (container) volume by the dosing volume equals the maximum number of samples that will fit into the bottle (container).
For safety reasons always calculate 10% less than the bottle capacity.

Attention: Calculation is not required when operating using sample modes "Quantity proportional" or "Event controlled" and distribution "Bottle change on time base".

Set up sequence end

The sampler can operate with or without a preset sample sequence end (continuous operation). Continuous operation = non stop distribution arm cycles.

... With sample distribution

Operate push button ⇐ as often as required to bring the flashing arrowhead ▼ over the display field marked as **END** .

The display indicates either **ON** or **OFF**.

ON = Sample sequence end (after last bottle)
OFF = No sample sequence end time (continuous operation).
Important: Plan emptying and changing bottles !

Using push buttons **-** or **+** select **ON** or **OFF**.

Start sampler automatic sequence by operating the **AUT** push button

If **ON** was selected the display indicates **END** and the sampler stops once the last bottle has been filled

Restart the sampler by operating the **AUT** push button. (Do not forget to either empty or change the filled bottles)

... With composite container without distribution

Without stop:

OFF = Continuous operation

Always plan when the sample container is to be changed or emptied.
The sample sequence can be ended at any time by operating the **OFF** push button.
Restart the sampler by first operating the **ON** push button followed by the **AUT** push button.

Or with automatic stop:

ON = Automatic sequence stops after either a preset time or number of samples taken.

Wait until the arrowhead ▼ over the display field **END** stops flashing.

Using push button ⇐ bring the arrowhead ▼ over the display field **TIME** or **SUM.**

TIME = Automatic stop after preset time.
SUM = Automatic stop after a preset number of samples has been taken.

Using push buttons **-** or **+** set the required stop value.
Start an automatic sampling sequence by operating the **AUT** push button.
Actual **STATUS** value (lower display) increases in time spans of 1 minute (when set to **TIME**) or by 1 after each sample cycle (when set to S**UM**).
The automatic sampling sequence stops once the **STATUS** display equals that in the **PRESET**.

The word **END** is displayed in the PRESET value display until a new sequence is started by operating the **AUT** push button.

Countdown for automatic sample start

If the automatic sampling sequence is to start with a time delay, set up the sampler as follows:
Calculate the required delay in minutes (from now to the required sample sequence start time). Hold the **AUT** push button for at least 5 seconds until the upper display indicates "**hold**" and the number "**0001**" appears (the lower display is empty). Using the **-** and **+** push buttons set the required time delay value, then wait ! Once the arrowhead in the display stops flashing the counter will count down one digit per minute. Once the counter has reached "0000" the countdown has finished and the sampler starts its automatic sampling sequence !

Correction: The counter can be reset at any time during the countdown phase (**+ -** push buttons).
Abort: Enter counter value "**0000**" or switch the unit on and off

Short term power failures do not abort the countdown, it continues to operate as normal.

Sample sequence interrupt / restart

Application: This input can be used to start and stop the sampler using an external contact, eg. an external timer can be connected and this will start and stop the sampling sequence at preset times.
A voltage of +7...+27 Volt (pin 4, yellow, in the signal plug) has the following function:

a) The *asp-port a 2* function is stopped. The actual value display **15 (STATUS)** in the sample field is reset to zero. The display indicates "**hold**". There are no further quantity proportional or event controlled samples taken and the time counter remains at zero. The counter values (**PRESET** and **STATUS**) in the distribution field are "frozen" and are therefore unaffected.

b) An initiated sample cycle is finished.
c) The heater option, if available, continues to operate.

A voltage of 0...3 Volt, or open circuit at the input allows the ***asp-port a 2*** to continue operating normally. The sampling status value restarts at zero, the next sample is taken once this value has reached the target (**PRESET**) value. The distribution status value continues to operate from the **"frozen"** value.

Alterations during operation

All target (**PRESET**) values and operational modes can be changed at any time, even during a sample sequence programme.
The *asp-port a 2* then continues sampling using the new values.
Should the sampler be switched off during a sampling cycle the medium in the dosing chamber is released.

Heater option

The flat bodied heater is fitted to the housing base. The temperature in the sample collection area is presettable.

Set the arrowhead ▼ over the display field **TEMP.** The display indicates the target (**PRESET**) and actual (**STATUS**) temperatures. Using the - or + push buttons set the required temperature (eg. $10^{O}C$)

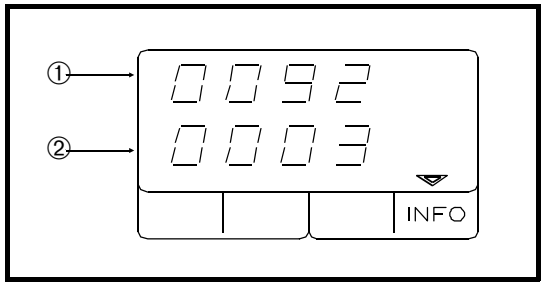
The display field ***TEMP*** is automatically exited after approx. 30 seconds if no further changes are made.
Temperature control is active so long as the unit is connected to a power source.

Additional information that can be indicated

The following values are displayed when the **INFO** field is selected:

Pump running times and faults (Upper display)

Display (upper)



① Pump running time in hours (Non resettable counter)
② Number of faults

Faults:

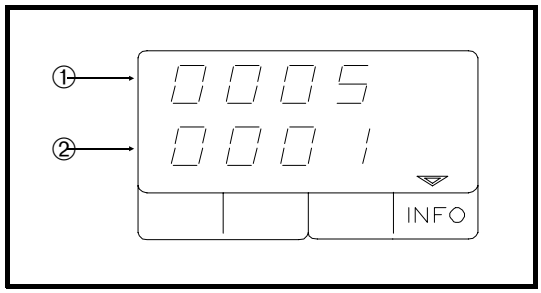
a) No medium in the dosing chamber within the required suction time (eg. sampling point is dry, suction hose is blocked, leaks in the suction system)

b) Power failure

c) Samples that cannot be taken because the start signal is received whilst a sampling cycle is active. This would occur mainly when operating on quantity proportional sampling when the time between two sample commands can be too short.

Number of not taken samples (Lower display)

Display (lower)



① During power failures
② Through start commands when sampling is already active

To ① If an automatic sample start should have been initiated.
If an externally controlled sample cycle should have been initiated (only on external auxiliary power source).

To ② If the sampling time cycle selected is too short.
If the flow rate (external measurement) is too high.
If events (external alarms) happen too frequently.

Counter reset:

The display is reset to 0000 when the unit is restarted into a new automatic sampling sequence (operating the AUT push button).

Solution:

* Automatic bottle change every 2 hours, making sure that the bottles are not totally filled.
* Sample sequence end after filling the last bottle.
* Automatic time proportional sampling sequence.

Calculate and set up a feasible relationship between the sample volume (per sample) and the preset time cycle (sample every x minutes) to bottle capacity (do not overfill) !

Example:

200ml	10 minutes	=	2400ml	in 2 hours
Dosing volume	time cycle		Container (bottle) volume	
or				
100ml	5 minutes	**=**	2400ml	in 2 hours
Dosing volume	time cycle		Container (bottle) volume	

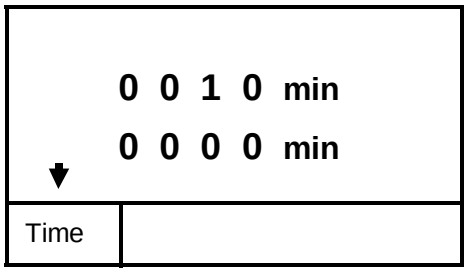
Requirement:

2 hour composite sample over 1 day using the "asp-port a 2" 12 x 2,5l distribution. Quantity measurement is not avaiable.

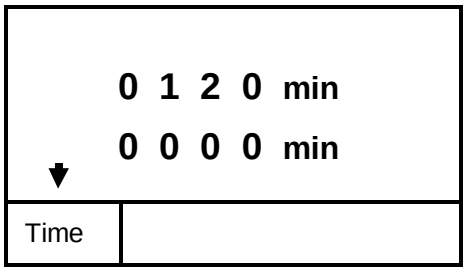
1. Set "dosing volume to 200 ml" (= volume per sample)

Settings for this example:

2. Upper display field:
   Set "time interval to 10 minutes" (= sample every 10 minutes) *

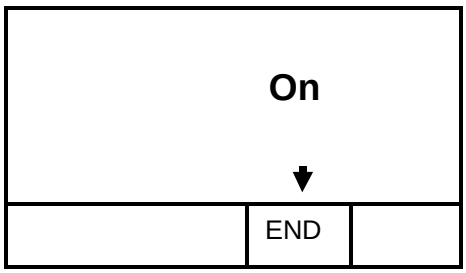


3. Lower display field:
   Set "bottle change to 2 hours" enter (120 minutes). *



4. Activate "sample sequence end" after last bottle filled
   Select "ON"

5. Operate the "AUT push button", automatic sampling sequence is started.



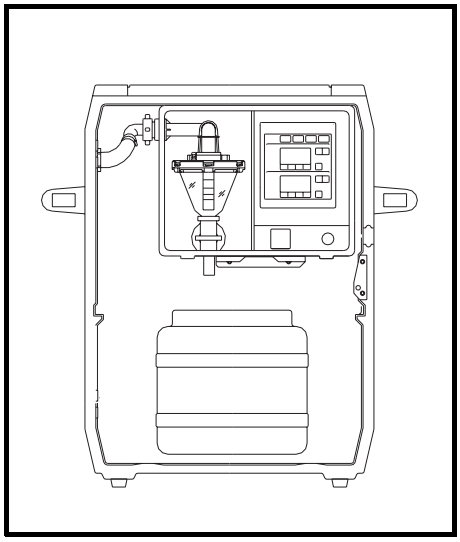
** = Zero display counters: simultaneously operate + / - push buttons*

Changing number of bottles

The sampler can operate using a composite container or can distribute the samples into a number of descrete bottles using a sample distribution system.
Changing from one form of distribution to another can be done by simply exchanging one form for another.

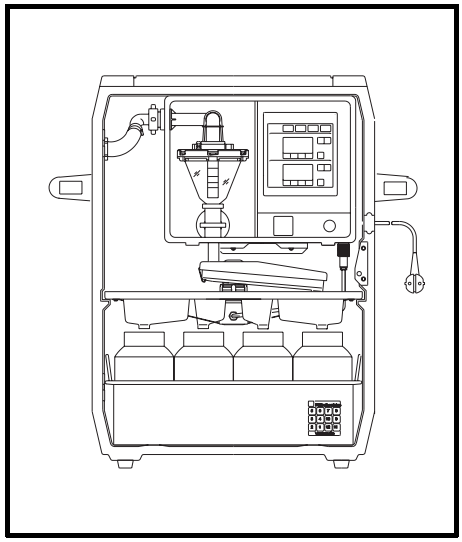
Changing from composite container to distribution

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 sample distribution system to composite container

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



Changing to other distribution types

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

a) Only use "bottles/bottle tray/distribution" that belong to each other.
b) 4x10l systems operates with single bottles and no distribution tray.
c) Do not forget to remove the bottle lids.

General

Maintain your *asp-port a 2* regularly. Clean and protect the outside cabinet using a stainless steel cleaning agent. Regularly oil the door hinges.

Sample distribution

Clean the distribution tray and tap with soap and water (do not use solvents, spirits, etc.). In order to clean the distribution system: disconnect the plug from the controller; remove the distribution tray; pull the distribution tap off the tray; undo the side clamps; split the tap and clean both halves. To reassemble reverse these instructions.

Dosing system

Always clean the dosing chamber and flange after approx. 1000 samples or sooner dependent on soiling. Clean this with soap and water (do not use solvents, spirits, etc.). Make sure the system is dry before reassembly. Ensure the system is assembled correctly.

Power cable

Check for visible damage and replace if needed.

Plugs and sockets

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

Storage

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.

Option: “battery pack”

Available on “asp-port a 2” in 12 VDC version:

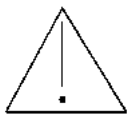
Regularly charge the battery pack, at least every 6 months if the sampler has been in storage. Always recharge empty batteries as soon as possible. Do not totally discharge the batteries. If the “asp-port a 2” is stored always make sure that the battery pack is disconnected from the sampler. The reason for this is that even in a switched off state the sampler draws approx. 20 mA. This means the battery would be discharged after approx. 20 days.

Repairs

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

Cleaning the asp-port a 2

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.



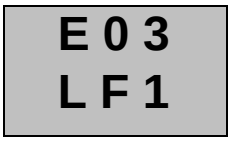
Information about application area and fault

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.

Fault messages

Fault messages are indicated in the display in a coded form. The codes have the following meanings:

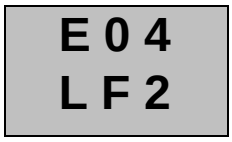


E 03 LF 1
Conductivity sensor **LF1** is short circuited. (Soiled).

- ☞ Remove dosing chamber from the sampler and remove the lid.
- ☞ Clean all sensors as well as the dosing chamber lid. (Underside).
- ☞ Re-assemble the dosing chamber and refit into the sampler.
- ☞ Operate the **OFF**-push button.
- ☞ Operate the **ON**-push button.

Display **E03 LF1** goes out, the unit continues to operate to the preset conditions. The sequence of operating the **OFF, ON** push buttons acknowledges the fault, counters are not reset to zero.

ATTENTION: Acknowledgement without cleaning unit can cause damage !

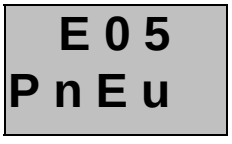


E 04 LF 2
Safety conductivity sensor **LF2** is short circuited !
If this message appears in the display conductivity sensor **LF1** has **not** been activated (open circuit, insulated).

- ☞ Remove dosing chamber from the sampler and remove the lid.
- ☞ Clean all conductivity sensors and lid (underside) thoroughly with soap and water.
- ☞ Re-assemble the dosing chamber and refit into the sampler.
- ☞ Operate the **OFF**-push button.
- ☞ Operate the **ON**-push button.

Display **E04 LF2** goes out, the unit continues to operate to the preset conditions. The sequence of operating the **OFF, ON** push buttons acknowledges the fault, counters are not reset to zero.

ATTENTION: Acknowledgement without cleaning unit can cause damage !



E 05 PnEu
Fault in the pneumatic controller (air manager).

- ☞ Operate the **OFF**-push button.
- ☞ Operate the **ON**-push button.

If the display **E05 PnEu** does not go out then there is a fault in the controller that can only be repaired by **Endress+Hauser Service** personnel.
*(Manual interference could cause the fault: Distribution PCB in the **"liqui-box a 2"** not connected).*

E 09 PrES

☞ Operate the **OFF**-push button.

☞ Operate the **ON**-push button.

☞ Display **E09 PrEs** goes out.

☞ Reset operational settings

This message occurs if:
- Over voltage has occurred (e.g. lightening)
- Not operating within the allowable ambient temperature range.
- Internal data battery back up is defective.

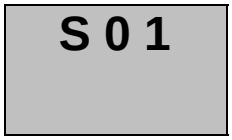
Check: Continuously connect the unit to a power supply for at least 48 hours (accumulator will recharge), switch the power off for approx. 1 minute then switch on again. If the fault message returns then the accumulator is defective.

If the fault message appears sooner then the fault is not to be found in the accumulator.

☞ Please check the application area

If the display **E09 PrEs** does not go out or should the fault reoccur the unit must be repaired by your **Endress+Hauser Service** personnel.

S 01 LF1



This message appears if the conductivity sensor **LF1** does not switch within a precalculated time from the start of a sampling cycle. This time is calculated by the controller using the required suction time of the first sampling cycle.
This message automatically goes out after a short time.
The counters in the upper INFO field, lower line (number of faults), is increased by one.

☞ Check the suction hose for obstructions.

☞ Check that the suction hose is submersed in water at the sampling point.

☞ Check all hose and pneumatic connections for leaks. This includes the complete dosing system (chamber, etc.).

E 0A Accu
Only on 12 V DC versions !

Reason: The operating voltage fell below 9.8 V !
Causes: New battery was connected or the battery is discharged.

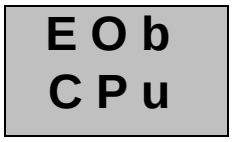
☞ Charge the battery !

☞ Operate the **OFF**-push button. Operate the **ON**-push button. If required set up operation modes and data again.

☞

Note:

With a fully charged battery the sampler can take the following number of samples: approx 500 samples with 1 m hose length and 5 min. sample cycle. Approx. 400 samples with 3.5 m hose length and suction depth and 5 min. sample cycle.



E 0b CPu
There is a fault in the controller.
Should only be repaired by **Endress+Hauser** service personnel

Others Pump is not running: Fuse in the controller is defective. Do not manually move the distribution tap ! (Start up run)

Option heater Does not heat up: Temperature sensor not plugged in.

All other repairs or faults on the unit should only be cleared by trained staff or **Endress+Hauser Service** personnel !

Description	Order code
Housing and external components:	
External elbow pipe fitting 13 mm	50062334 + 50042066
External elbow pipe 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 pipe fitting	50031700
Power socket protection cap	50032370
Signal socket protection cap	50046009
230 V power cable	50041586
Liqui-box/battery pack connection cable	50043008
Signal plug with 1,5 m cable	50044995
12 V DC battery pack	50046155
12 V, 3A battery charger	50046154
Dosing system and pneumatics:	
200 ml dosing chamber	50072149
350 ml dosing chamber	50038228
6,5 cm silicon hose	50037923
Silicon hose jubilee clip	50031087
Hose clamp	50042508
Hose clamp diaphragm	50031633
350 ml retro fit kit	UE-LD4
200 ml dosing chamber flange	50072151
200 ml dosing chamber bayonett ring	50072150
O-ring set	UE-LDB
230 V AC vacuum pump	UE-LPK
12 V DC vacuum pump	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 1.9l PE bottle tray	FLKORB-F
24 x 1l PE bottle tray	FLKORB-C
24 x 1l glass bottle tray	FLKORB-G

Please give order code when requesting prices or ordering components

Cabinet:	Polyurethane integral hard 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 to +40°C With heater: -15°C...+40°C
Allowable medium temperature:	0^{o}C ... +50^{o}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: 9.8 V, On: 10.8 V)
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 when sampling)
Safety:	To VDE 0411 Part1, protection class I Over voltage category II
EMC/immunity:	To EN 50082-1
RF:	To EN 55011 class A (Industrial surroundings)
Data security:	>500h during power failure (condition: powered for at least 7 days previously)
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 inside diameter hose
Sample volume:	20 ml to 200 ml presettable (option 350ml)
Sampling modes:	Time proportional : 1 min. bis 9999 min Quantity proportional : 1 Imp. bis 9999 Imp. Event controlled : 1 Imp. Manual start : Via **MAN** push button

Sample distribution:

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

Countdown:

Presettable time delay for automatic sample sequence start from 0...9999 minutes

Impulse input:

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

Stop input:

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

Outputs:

Alarm output: Transisitor output (open collector, NPN, Emitter internal to GND)

Sample sequence end: Transisitor output (open collector, NPN, Emitter internal to GND)

Auxiliary voltage from unit:

U_{ext} : + 8 bis + 18.5 V DC(200 mA)

Material used (partial)

"liqui-box a 2" housing:	ABS
Dosing chamber:	PMMA
- Flange:	PP/PPN
- Sensors:	1.4305
Dosing tube:	PVC
Connection tube:	PP
Outlet hose:	Silicon
Pneumatic controller:	
- Block:	Polycarbonate
- Gasket:	Silicon
Distribution system:	Polystyrol
Sample bottles:	Polyethelene or glass
Bottle tray:	1.4301 (st. st.)

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
Connection cable to the ***"liqui-box a 2"*** controller

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

Technical modifications reserved!

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