

BSS 2 Bottle Sampling System



Instruction manual Version 1.8

Serial-No.:
Version-/Rev.-Date : 12.06.2012

Contents

- 1. General 3**
- 2. Safety Instructions 4**
- 3. Extent of Delivery 5**
- 4. Switch Panel 6**
- 5. Bottle Sampling 7**
 - 5.1. Reservoir 7
 - 5.2. Sampling..... 7
- 6. Commissioning..... 8**
 - 6.1. Power supply 8
 - 6.2. Compressed Air Supply 9
 - 6.2.1. Operation with the Compressor from INTERNORMEN-electronics 10
 - 6.2.2. Operation with Existing Compressed Air Supply..... 11
 - 6.3. Connection to CCS 1 / CCS 2 12
- 7. Before the Analysis 13**
 - 7.1. Conditioning of the Sample..... 14
- 8. Analysis of sample 14**
 - 8.1. Degassing..... 14
 - 8.2. Sample Feed 17
- 9. Cleaning and Maintenance 19**
- 10. Technical Data 20**
 - 10.1. Connections..... 20
 - 10.1.1. Electrical 20
 - 10.1.2. Pneumatic..... 20

1. General

Dear Customer

We congratulate you on buying the **INTERNORMEN**-electronics Bottle Sampling System BSS 2. Before commissioning please read this manual carefully to prevent damages to the BSS 2.

You have purchased a product which is technically up-to-date and which enables you to perform a particle count in lab quality, at any points of your plant where an online-analysis is not possible.

The sampling and the output of results only take a few minutes.

In general an online-measurement is to be preferred rather than a bottle sample analysis. The process from sampling to particle counting involves many possibilities of mistakes. Therefore this kind of analysis should be carried out only by trained personal.

2. Safety Instructions

- 👉 To prevent accidents it is important to keep strictly to the manual during the operation of the BSS 2.
- 👉 Never try to open the pressure chamber, when the system pressure varies from the ambient air pressure.
- 👉 Never try to pressurise the chamber before being sure that it is tightly closed (see the lighting diode!)
- 👉 Never use damaged or defective components (threaded joints, hoses, connectors etc.)!
- 👉 A damaged pressure vessel (scratches in the glass, bent housing etc.) must not be used.
- 👉 Never open the BSS 2 housing !

👉 **In case of any irregularities concerning the function of the BSS 2 please immediately contact your nearest *INTERNORMEN Technology GmbH* in Altlußheim representative.**

3. Components of BSS 2

The BSS 2 includes :

- Case [1]
- Instrument base with integrated service unit [2]
- Pressure vessel [3]
- Power supply unit [4]
- Connector for pneumatics [5]
- High pressure hose with mini-measuring connection M 16x2 [6]
- Compressor [7] (optional)
- Spiral hose [8] (optional)

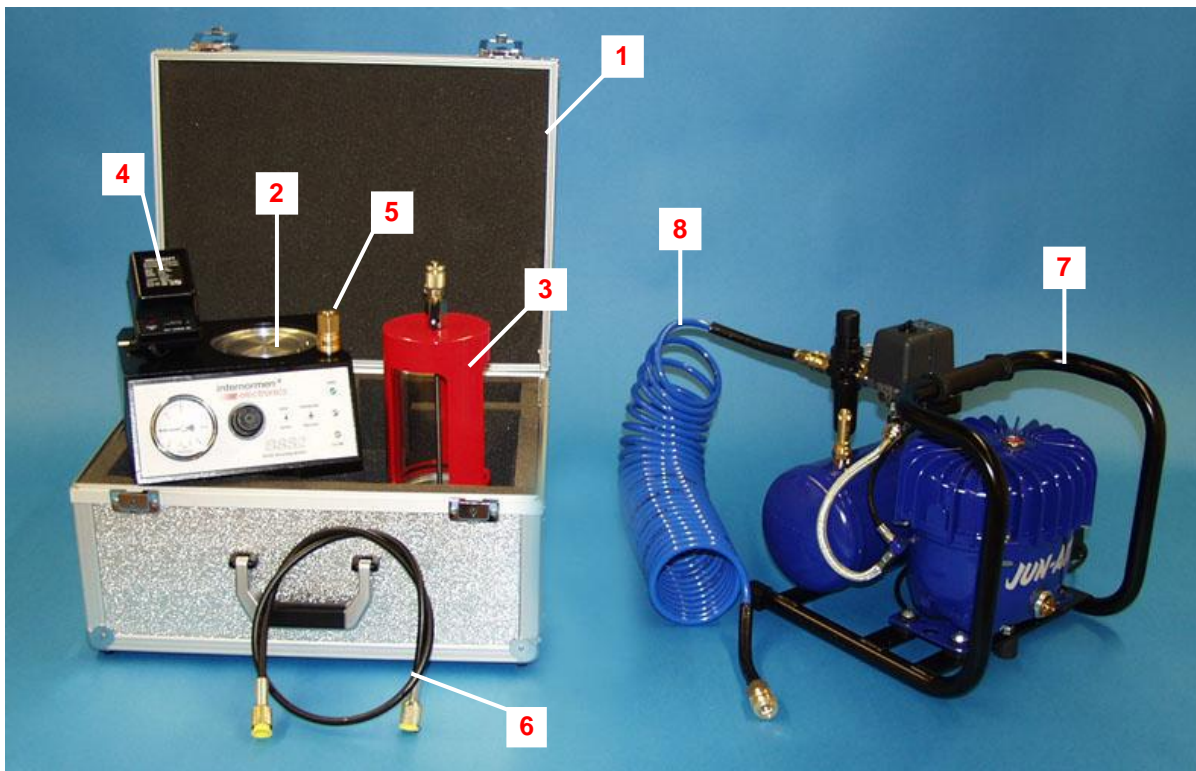


Illustration 1

4. Switch Panel



Illustration 2

- B1** – Vacuum + pressure gauge
- B2** – Regulator (pressure + vacuum)
- B3** – Switch **VENT / WORK**
- B4** – Switch **PRESSURE / VACUUM**
- B5** – Switch **OPEN / CLOSE**
- B6** – Green light emitting diode **OPEN**
- B7** – Yellow light emitting diode **CLOSE**

5. Bottle Sampling

5.1. Reservoir

Before sampling make sure that the reservoir to be used can be put into the pressure chamber of the BSS 2.

To guarantee reliable results of measurement you should only use reservoirs whose cleanliness according to ISO 3722 is proved. You can buy them directly from **INTERNORMEN Technology GmbH** (two sample bottle set, Best. Nr. 313427). These glasses should be used only once.

5.2. Sampling

The bottle sampling requires a very careful handling. First flush the sampling point for a few seconds. Open the sample reservoir just directly before taking the sample, and close it immediately afterwards. Only this way the ambient influences do not impact your measuring results.

Label your samples carefully. Note:

- Sampling point
- Date and time of sampling
- Sampler (name, first name)
- Special notes, if applicable

This is important for samplings at different plants, respectively different points of the plant to help prevent any unclearness.

6. Commissioning

6.1. Power supply

For the operation of the BSS 2 you should only use the plug-in power supply supplied by **INTERNORMEN**-electronics, which is included in the system. Make sure that this power supply unit is set to the required output voltage of 12 V DC. (Illustration 3).



Illustration 3

Put the plug of the power supply unit into the current outlet (230 V~ 50 Hz) and the connection cable into the socket of the BSS 2 (Illustration 4) on the backside of the device. The actual unit might vary depending on the respective country's voltage.



Illustration 4

When correctly connected, one of the light emitting diodes **OPEN** respectively **CLOSE** should light up after a few seconds.

Turn the switch **VENT / WORK** to the direction **VENT**, if it is in **WORK**.



6.2. Compressed Air Supply

In addition to the electric connection, the BSS 2 of **INTERNORMEN**-electronics also requires an external compressed air supply. This is provided either by an existing compressed air piping or the compressor optionally available.

6.2.1. Operation with the Compressor from *INTERNORMEN*-electronics

Instructions for the handling of the compressor are given in the enclosed manual.

Connect the BSS 2 with the compressor. For this use the spiral hose (Pos. 8, Illustration 1) which is optionally available. Put the hose plug into the coupler of the compressor. (Illustration 5).



Illustration 5



Illustration 6

Now put the other end (coupler) into the quick connect plug at the backside of the BSS 2 (Illustration 6). The coupler is locked, when you hear a clicking noise while putting into one another.

To release the plug connectors, pull back the locking ring of the closing coupler.

Before releasing make sure that the system is not under pressure.

Integrated service unit

The serialize inserted service unit prevents the entry of dirt and humidity into the BSS 2.

To empty the container over knurled screw during accumulation of liquid.



6.2.2. Operating with Existing Compressed Air Supply

Note:

Take care that the parameters required concerning the air volume flow as well as the pressure are strictly kept! Any divergences might cause malfunctions or damages of the BSS 2. The filter regulator reducer which is optionally available should be used.

Connect the BSS 2 to the pressure air supply. For this please use the optional attached plug-in connection to be connected with the device. This plug-in connection has an internal screw thread G 1/4 for the hose. Please make sure a firm seat and sealing between the hose and connector.



Now slip the connection cap over the plug at the backside of the BSS 2 (Illustration 7).

To release the plug connectors, pull back the locking ring of the closing coupler.

Before releasing make sure that the system is not under pressure.

Illustration 7

Integrated service unit

The serialize inserted service unit prevents the entry of dirt and humidity into the BSS 2.

To empty the container over knurled screw during accumulation of liquid.



6.3. Connection to CCS 1 / CCS 2

Connect the BSS 2 to the contamination control system by means of the pressure hose (6, Illustration 1) included in the BSS 2. First remove the screw cap of the mini-measuring connection at the top of the pressure vessel (Illustration 8). Now you can mount the hose. The same way of connection applies to the CCS 1 as well as the CCS 2.



Illustration 8

👉 Note:

Make sure a firm (hand-tight) fixing of the screw couplings to the high pressure hose. A proper sealing is needed for correct results of the analysis!

7. Before the Analysis

After following the instructions you are ready to operate the BSS 2. Make sure that you have sufficient air supply and pressure (max. 10 bar).

Turn the compressor on (if operated by compressor), respectively open the feeding main to the BSS 2 (existing compressed air supply). Set the pressure control valve to a rate between **6,0** and **6,5 bar**. **A different pressure rate might cause malfunctions or damages to the BSS 2.**

Turn the switch **OPEN / CLOSE** to the position **OPEN**. When the diode **OPEN** (green) lights up, the pressure chamber lock is released. Now you can remove the pressure vessel.



Make sure that an O-ring (90x2,5) is inside the locking device (Illustration 9).



Illustration 9

7.1. Conditioning of the Sample

Before putting the bottle into the BSS 2 for examination, **homogenize thoroughly and ½ - 1 minute in the ultrasonic bath place.** For exact measuring results an equal distribution of the particles is important. The following shaking procedure should take about **two minutes**, dependent on the fluid viscosity, contamination and time interval between sampling and analysis.

The vibration time depends directly on the fluid viscosity.

< ISO-VG-32	⇒ 2 min
ISO-VG-46 ... 100	⇒ 3 ... 4 min
> ISO-VG-100	⇒ 5 ... 10 min (additional warming-up is indicated)

8. Analysis of sample

Instructions for the operation of the CCS1, respectively the CCS2 can be taken from their manuals.

Immediately after termination of the sample conditioning the analysis should be done.

8.1. Degassing

Place the sample on the cover plate of the pressure chamber at the topside of the device. Please make sure once again that the O-ring is in proper position. Place the pressure vessel over the sample. Be aware of the correct position, i.e. it has to have slipped completely downwards. Now you can turn the switch **OPEN / CLOSE** to the position **CLOSE** (Illustration 12, 1). Wait until after a few seconds the diode **CLOSE** (yellow) lightens. Close the ball valve at the topside of the pressure vessel (Illustration 10).

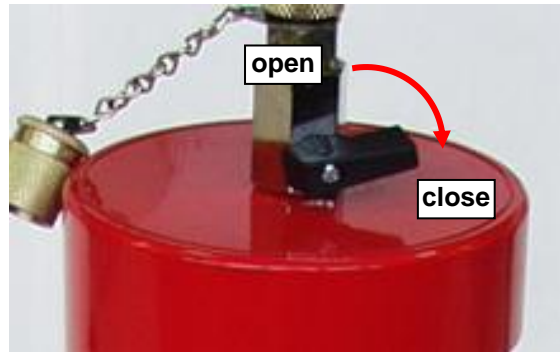


Illustration 10

Turn the switch **VENT / WORK** to the position **WORK** (Illustration 11, 2). Turn the switch **PRESSURE / VACUUM** to the position **VACUUM** (Illustration 11, 3).

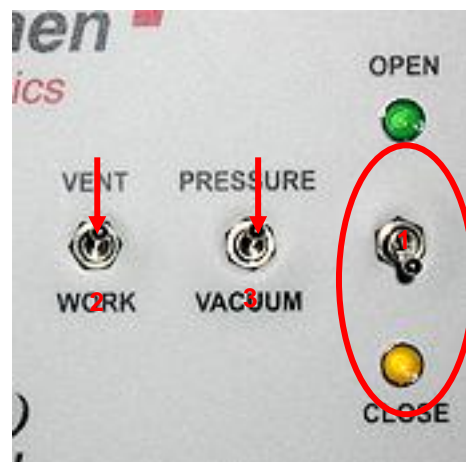


Illustration 11



Illustration 12

Pull out the handle of the pressure regulator.

Now turn the handle clockwise (Illustration 13) until – 1,0 bar. This will produce a vacuum in the pressure chamber. The more you turn, the lower the pressure in the chamber. You can observe this on the vacuum / pressure gauge (Illustration 13).



Illustration 13

Note :

Observe the sample carefully during the degassing (Illustration 14). Reduce the pressure in the chamber slowly and constantly. This will stop the sample from bubbling over. This is important, since oil spills might damage the system.



Illustration 14

Keep the vacuum in the chamber until there are no gas bubbles in the fluid anymore.



Illustration 15

Turn the handle (illustration 15) anticlockwise until 0,0.

8.2. Sample Feed

Turn the switch **PRESSURE / VACUUM** to the position **PRESSURE** (Illustration 16, 1).

Now turn the handle (Illustration 16, 2) slowly clockwise. This will increase the pressure in the chamber. Continue turning until the gauge (Illustration 16) indicates a pressure of about approximate 3,0 bar. When you hear a hissing noise, the pressure in the chamber is too high. In this case turn the handle anticlockwise until this noise stops.



Illustration 16

Open the ball valve at the top of the pressure vessel (Illustration 15).
Turn the switch **PRESSURE / VACUUM** to the position **PRESSURE**
(Illustration 16, 1).

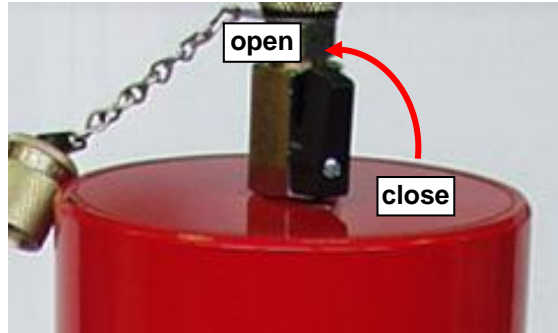


Illustration 15

Now you can start the measurement at your particle counter. Please observe the instructions for „Bottle Sampling“ in the manual of your contamination controller.

Note :

Due to the system design it is unavoidable that at the beginning of the sampling analysis there is air in the supply tube of the contamination controller. If there are only small differences between the individual ranges of particle size, this might point to air bubbles in the measuring system. Therefore repeat the measurement as long as the counting results are stable. Finish the analysis before the whole sample is used up. The ascending tube of the pressure vessel should sufficiently enter the fluid (Illustration 17).



Illustration 17

After finishing the measurements turn the switch **VENT / WORK** to the position **VENT**. You will then hear a hissing noise produced by the air escaping from the pressure chamber. Wait until this is ended, and then turn the switch **OPEN / CLOSE** to the position **OPEN**. When the green diode **OPEN** lights up, the vessel is unlocked and you can remove it by lifting upwards. Remove the sample glass.

9. Cleaning and Maintenance

Please keep the device and the feeding tubes absolutely clean. After every use the device has to be flushed. For the flushing please use fine filtered low viscosity oil (e.g. ISOVG22 / ISOVG32). Before operating the BSS2 after a long time of not using it (about 2 weeks), the particle counting device should be flushed properly.

- For the cleaning of the pressure dome and the device housing please use a soft, fuzz-free cloth.
- Take care that the ascending tube is not bent while cleaning the pressure chamber. A contamination especially of this component would have negative effects on correct counting results, as it is in direct contact with the sample.
- Wipe the oil remains away from the plate of the pressure chamber lock and from the sealing area. For the cleaning do not use any aggressive chemical or rubbing agents.

10. Technical Data

Dimensions: 220 x 240 x 390
Weight: 6,5 kg
Initial pressure: 0...4 bar
Vacuum: 0...-0,95 bar

10.1. Connections

10.1.1. Electrical

Power supply / mains: 230V ~ 50 Hz or 110 V ~ 60 Hz
Power supply / device: 12 V DC

10.1.2. Pneumatic

Pressure range: 5...7 bar
Flow rate: min. 40 l/min air
Connections: Rapid action coupling NW 7,2 with internal thread G ¼
Mini-measuring connection with screw coupling M16 x 2

Subject to technical alterations!

North America — HQ

70 Wood Ave., South, 2nd Floor
Iselin, NJ 08830
Toll Free: (800) 656-3344
(North America Only)
Voice: (732) 767-4200

China

No. 3, Lane 280, Linhong Road
Changning District, 200335
Shanghai, P.R. China
Voice: +86-21-5200-0099

Singapore

4 Loyang Lane #04-01/02
Singapore 508914
Voice: +65-6825-1668

Europe/Africa/Middle East

Friedensstraße 41
D-68804 Altlussheim, Germany
Voice: +49-6205-2094-0

Auf der Heide 2
53947 Nettersheim, Germany
Voice: +49-2486-809-0

An den Nahewiesen 24
55450 Langenlonsheim, Germany
Voice: +49 6704 204-0

Brazil

Av. Julia Gaioli, 474 –
Bonsucesso
07251-500 – Guarulhos, Brazil
Voice: +55 (11) 2465-8822

For more information, please e-mail us at filtrationinfo@eaton.com

Visit us online eaton.com/filtration for a complete list of Eaton's filtration products.

©2012 Eaton Corporation. All Rights Reserved.

All trademarks and registered trademarks are the property of their respective owners. Litho USA.

All information and recommendations appearing in this brochure concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Eaton as to the effects of such use or the results to be obtained. Eaton assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

EATON

Powering Business Worldwide

