



# Engine Protection Partner AS

## Schaller Automation Scandinavia & Baltics



## A Guide for Visatron Oil Mist Detector users

» Spare parts

» Troubleshooting

» Exchange Pool

» Service & Maintenance



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The new *Guide for Visatron Oil Mist Detector users* has been designed especially for Engine Protection Partner AS, and will answer your questions concerning the handling, operation, and maintenance of the oil mist detector Visatron series. Our intention is to make it easier to fault locate, solve technical problems and to understand the basic functionality of the oil mist detector. Should you encounter any interruption or breakdown of your Visatron oil mist detector during operation, please find contact details at: [www.epp.no](http://www.epp.no).

**The repair of OMD device should only be carried out by Engine Protection Partner AS – as we are an authorized repair centre for Schaller Automation. You can expect safe and reliable operation of your OMD when the device is operated in accordance with this guide.**

**Please take note of the following:**

- Please read this OMD handbook thoroughly and acquaint yourself with the correct installation, operation, and maintenance of your Visatron device.
- Use the Visatron devices only for the purpose described in the operating manual.
- Incorrect maintenance and handling errors may cause possible devices failure or an unsafe operating environment.
- The Visatron devices may only be used by authorized staff.

## Safety instructions

There are colour marking on the outer top corner of the page indicating which Visatron series the content on the page is about:

**VN/87 EMC**

**VN/87plus**

**VN/93**

**VN 2020**

**VN301plus**

The Visatron oil mist detectors are manufactured according to the high-quality standards of Schaller Automation and must pass stringent factory tests. In order to keep the device in smooth and problem free operation, the user must take note of the safety hints and warnings. In the instruction manual they are marked with the following symbols:



**CAUTION!** Do not ignore the text next to this symbol. Personnel safety can be endangered, or the device can be damaged.



The marked text contains important information.



### **WARNING!**

Don't ever ignore or try to restart the engine after a high oil mist concentration alarm or shutdown of the engine before the cause of overheating has been found and solved! Otherwise, you risk heavy engine damage or an oil mist explosion! When the engine has been overheated, crankcase doors and other hand hold covers must remain closed for a minimum of 10 minutes after the engine is shut down!

# Why use of oil mist detector

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Oil Mist Detectors protect large Diesel, Gas and Dual Fuel engines of all applications from heavy consequential damage due to oil mist explosions as a result of overheating of bearings or other moving parts.

All Schaller VISATRON Oil Mist Detection Systems continuously draw the atmosphere from every compartment of the engine's crankcase by the use of a suction system. The suction vacuum required is generated by a wear-free air jet pump within the device, fed by compressed air.

## The basics- and advantages of our Oil Mist Detectors

Although different to other systems on the market, this technology is well proven and accepted by both, engine makers and ship owners and brings along some field advantages such as high operations reliability and low maintenance costs.

The VISATRON® Oil Mist Detection System is designed to *last for the entire engine lifetime*.

**Surfaces that can generate intensive oil mist in addition to the crankshaft bearing system include:**

- **Pistons in cylinder liners**
- **Crankshaft bearings such as main bearings and big-end bearings**
- **Camshafts, their bearings, and cams**
- **Timing gear shafts and their bearings**
- **Gear boxes with their bearings, and in some cases pumps**
- **Guide blocks and paths in crosshead engines**



Oil mist in these sliding surfaces can only be monitored by an oil mist detection system, and therefore in the case of an overheating phenomenon starting in one of them, or a possible piston seizure occurring, an oil mist detection system should be employed.

## Class Approval

SOLAS requirement for oil mist detectors – Engines of 2,250 kW and above or having cylinders of more than 300mm bore shall be provided with crankcase oil mist detectors, engine bearing temperature monitors or equivalent devices. As per IACS M10.8 oil mist detection arrangements (or engine bearing temperature monitors or equivalent devices) are required:

For alarm and slow down purposes for low-speed diesel engines of 2,250 kW and above or having cylinders of more than 300mm bore for alarm and automatic shutoff purposes for medium- and high-speed diesel engines of 2,250 kW and above or having cylinders of more than 300mm bore. SCHALLER AUTOMATION developed the VISATRON® oil mist detectors to meet the IACS UR M10.

**Our oil mist detectors are:**

- Type approved for closed areas
- Designed for installation on combustion engines
- Approved for environmental category D
- Conform to IACS UR M67



For more information about class approval:

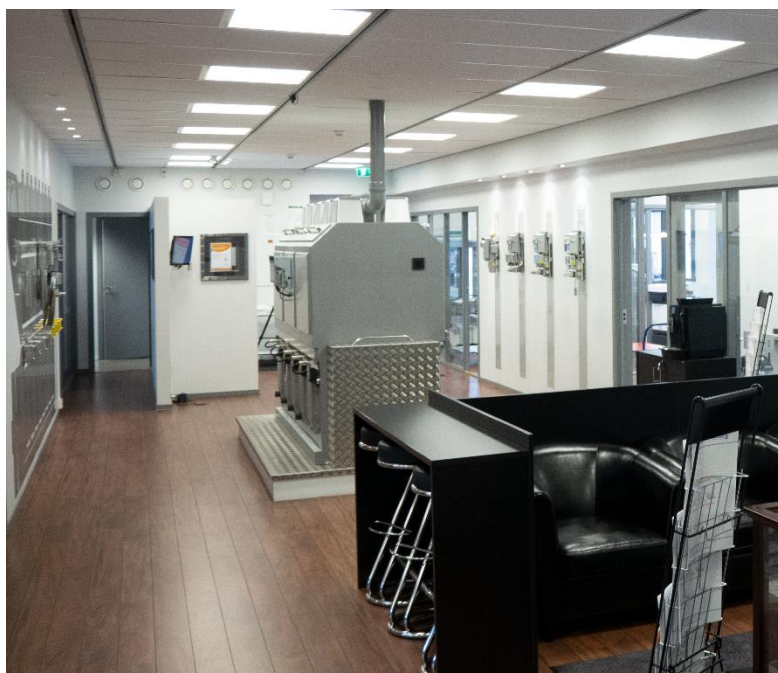
<https://www.epp.no/visatron-oil-mist-detector-systems/>



## Engine Protection Partner AS – the largest service partner worldwide!

Engine Protection Partner AS is a part of Schaller Automation group, and are the main centre for Norway, Svalbard, Jan Mayen, Faroe Islands, Aaland Islands, Sweden, Finland, Denmark, Iceland, Estonia, Latvia, Lithuania and Greenland. Our location is Bergen city in Norway. Since the start of 1995, our high knowledge of the technology has been leading us to be well known name onboard vessels using Visatron oil mist detector systems around the world. Engine Protection Partner AS provides you as a customer total service within sales, technical support, service and repairs 24/7. Engine Protection Partner AS is authorized by Schaller Automation for repairs. The main stock centre ensures you as a customer delivery within 24 hours. Engine Protection Partner AS is certified by Intertek Certification according to DIN EN ISO 9001:2015. EPP is Schaller's largest service partner worldwide!

Schaller Automation has for more than 50 years contributed worldwide to achieve a safe operation of large diesel, gas, and dual fuel engines, brought innovative products to the market, and built a trustworthy partnership with clients. These qualities have made Schaller Automation to become the market leader in the sector of the protection of large diesel, gas, and dual fuel engines against crankcase explosions by detection of oil mist. Schaller Automation employs more than 100 engineers, task specialists. A close cooperation with several universities and private research institutes allows Schaller Automation to bring both together for best result: theoretical and practical know how.



## Repair and service department

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Engine Protection Partner AS is authorized by Schaller Automation GmbH & Co for repairs on component level and is known for high-quality on all stages with the latest technology in use. Our workshop has become known for quick repairs and first-class service. All completed repairs go through extensive testing and are delivered with full documentation. The repair department is certified according to DIN ES ISO 9001:2015.

The repair department is separated in two departments: electronic repairs and mechanical repairs. Engine Protection Partner AS ensures always highly skilled personnel specialized for the different repair processes. In the electronic repair department, you will find the latest repair technology based on the POLAR robot fault locators. The repair departments are flexible, so if you require urgent service/repair of your Visatron oil mist detector – Please contact us, we always find good solutions!





## Exchange pool (EXP) for all systems

We offer a complete stock of exchange units. You can order after your specific needs, for example a measuring head or a complete oil mist detector system. Our systems are based on the principle "Plug & Play". This means that it is easy for the crew to make the installation of different parts in the exchange pool. Installation documentation and return form with return labels already filled out by us are following each exchange pool component to make it easier for you as user to ensure correct return of the defect components. Normal return period is 60 days of the defect components. If you face problems with delay, please contact us, and we will extend the return period up to 120 days without any extra cost!

**NOTE: According to warranty conditions when replacing only measuring head alternative – you always must replace maintenance kit for the specific model for warranty to remain during the next 1-year period. All kits marked with «+» in the end of the part number contains measuring head and maintenance kit for base plate. Example: 11651EXP+. When choosing complete exchange oil mist detector, a maintenance kit is not necessary.**



### VN/87 EMC Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100150-151483	10601EXP+
VN 115/87 EMC	Measuring head - only	Measuring head without maintenance kit	10601EXP
VN 116/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100151-151484	10701EXP+
VN 116/87 EMC	Measuring head - only	Measuring head without maintenance kit	10701EXP
VN 215/87 EMC	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100152-151485	10801EXP+
VN 215/87 EMC	Measuring head - only	Measuring head without maintenance kit	10801EXP

### VN/87plus Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100150-151483	11651EXP+
VN 115/87plus	Measuring head - only	Measuring head without maintenance kit	11651EXP
VN 116/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100151-151484	11751EXP+
VN 116/87plus	Measuring head - only	Measuring head without maintenance kit	11751EXP
VN 215/87plus	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100152-151485	11851EXP+
VN 215/87plus	Measuring head - only	Measuring head without maintenance kit	11851EXP

### VN/93 Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100153-151489	11201EXP+
VN 115/93	Measuring head - only	Measuring head without maintenance kit	11201EXP
VN 116/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100154-151487	11401EXP+
VN 116/93	Measuring head - only	Measuring head without maintenance kit	11401EXP
VN 215/93	Measuring head kit	Measuring head incl. maintenance kit Part no.: 100155-151488	10901EXP+
VN 215/93	Measuring head - only	Measuring head without maintenance kit	10901EXP

## VN2020 Measuring Head Exchange Pool

Type:	Product:	Description:	Part no.:
VN 2020	Measuring head kit	Measuring head incl. maintenance kit Part no.: 155004	290044EXP+
VN 2020	Measuring head - only	Measuring head without maintenance kit	290044EXP
VN 2020 EX	Measuring head kit	Measuring head incl. maintenance kit Part no.: 155004	290045EXP+
VN 2020 EX	Measuring head - only	Measuring head without maintenance kit	290045EXP

## Complete Oil Mist Detector Exchange Pool

Type:	Product:	Description:	Part no.:
VN 115/87 EMC	Oil mist detector	Complete oil mist detector	10600EXP
VN 116/87 EMC	Oil mist detector	Complete oil mist detector	10700EXP
VN 215/87 EMC	Oil mist detector	Complete oil mist detector	10800EXP
VN 115/87plus	Oil mist detector	Complete oil mist detector	12600EXP
VN 116/87plus	Oil mist detector	Complete oil mist detector	12700EXP
VN 215/87plus	Oil mist detector	Complete oil mist detector	12800EXP
VN 115/93	Oil mist detector	Complete oil mist detector	11200EXP
VN 116/93	Oil mist detector	Complete oil mist detector	11400EXP
VN 215/93	Oil mist detector	Complete oil mist detector	11900EXP
VN 2020	Oil mist detector	Complete oil mist detector	155000EXP
VN 2020 EX	Oil mist detector	Complete oil mist detector	155001EXP



For more information about our Exchange Pool:

<https://www.epp.no/exchange-pool/>



# Our Products

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## Visatron VN/87plus

The VN/87plus generation consist of: VN 115/87plus, VN 116/87plus & VN 215/87plus. The VN87plus is the successor of the VN/87 EMC. The VN/87plus was placed into the market in 2008 and was in production until the system was replaced by the VN2020 and VN301plus in 2020. The VN/87plus was mainly used for 4-stroke engine market, and the system requires a single tube installation. The VN 116/87plus and VN 215/87plus was mainly used for the 2-stroke engine market. The VN 215/87plus indicates during a high oil mist concentration alarm which compartment the oil mist is coming from. The VN 116/87plus indicates from what side (right or left side of the OMD installation), the oil mist concentration is coming from. The VN 115/87plus is during a high oil mist concentration alarm, indicates that there is coming oil mist concentration from the engine, without any compartment location of the oil mist.

For the VN/87plus version we supply:

- Authorized repair of the complete VN/87plus line
- Exchange Pool for all VN/87plus models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/87plus line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement

For more information:

<https://www.epp.no/products/vn-87plus-series/>



## Visatron VN301plus

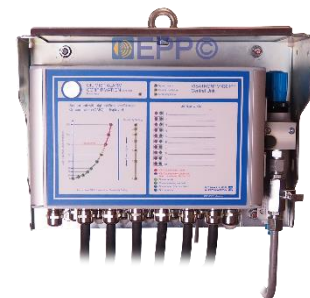
The VN301plus is based on 50 years of experience in oil mist detection. The VN301plus system consist of a central unit which up to 20 sensors (master slave version) can be connected. Each sensor monitors one crankcase compartment independently and is a standalone unit. When a sensor is replaced, the surrounding sensors ensure that the crankcase is monitors under safe conditions.

For the VN301plus generation we supply:

- Sale of new complete systems
- Sale of reconditioned systems
- Spare parts with delivery within 24 hours!
- Exchange Pool
- Service agreement
- Authorized service on-site
- Authorized repairs
- Technical 24/7 service supply

For more information:

<https://www.epp.no/products/visatron-vn301plus/>



## Visatron VN2020

The VN2020 system replaces the VN/87plus generation. The system was launched in 2020 and replaces the VN 115/87plus and the VN/116/87plus. For VN 215 applications the VN301plus is the successor. The mayor changes on the VN2020 oil mist detector are:

- Integrated pressure regulator including water/oil separator
- New design of LED panel that ensures safe reading under operation!
- New solid connection box, instead of connection socket!
- Reset button position directly on the measuring head
- New safe position of wire break resistance
- New pressure sensor technology, no need for fresh air filters
- CANopen and MODBUS RTU signals

For the VN2020 generation we supply:

- Sale of new complete systems
- Sale of reconditioned systems
- Spare parts with delivery within 24 hours!
- Exchange Pool
- Service agreement
- Authorized service on-site
- Authorized repairs
- Technical 24/7 service supply

For more information:

<https://www.epp.no/products/visatron-vn2020/>



## Visatron VN/87 EMC

The VN/87 EMC generation consist of: VN 115/87 EMC, VN 116/87 EMC & VN 215/87 EMC. The VN/87 EMC is the successor of the VN/79 & VN/82 generations. The VN/87 was placed into the market in 1985 and was in production until the system was replaced by the VN/87 EMC in 1998. The VN/87 EMC was then replaced by the VN/87plus in 2008. The VN 115/87 EMC was mainly used for the 4-stroke engine market and the system requires a single tube installation. The VN 166/87 EMC & VN 215/87 EMC was mainly used for the 2-stroke engine market.

For the VN/87 EMC generation we supply:

- Authorized repair of the complete VN/87EMC line
- Exchange Pool for all VN/87 EMC models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/87 EMC line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement



For more information:

<https://www.epp.no/products/visatron-vn-87-emc-series/>

## Visatron VN/93

The VN/93 generation consist of: VN 115/93, VN 116/93 & VN 215/93. The VN/93 generation did not replace any of our other oil mist detector generations but was a supplement to the other systems. The VN/93 generation was launched into the market in 1997 and production line stopped in 2019. It is easy to identify the VN/93 generation as this is the only oil mist detector by Schaller Automation that was not in a grey, metallic colour, but white.

VN 115/93 during a high oil mist concentration alarm is indicating that there is oil mist concentration inside the engine. VN 116/93 indicates which side of the installation the oil mist concentration is located in the engine. VN 215/93 indicates which compartment of the engine the high oil mist concentration is located in.

For the VN/93 generation we supply:

- Authorized repair of the complete VN/93 line
- Exchange Pool for all VN/93models
- All types of spare parts delivered within 24 hours!
- Sale of reconditioned units of the VN/93 line
- Technical 24/7 service supply
- Authorized service on-site
- Service agreement

For more information:

<https://www.epp.no/products/visatron-vn-93-series/>





## Wire break resistance for oil mist alarm



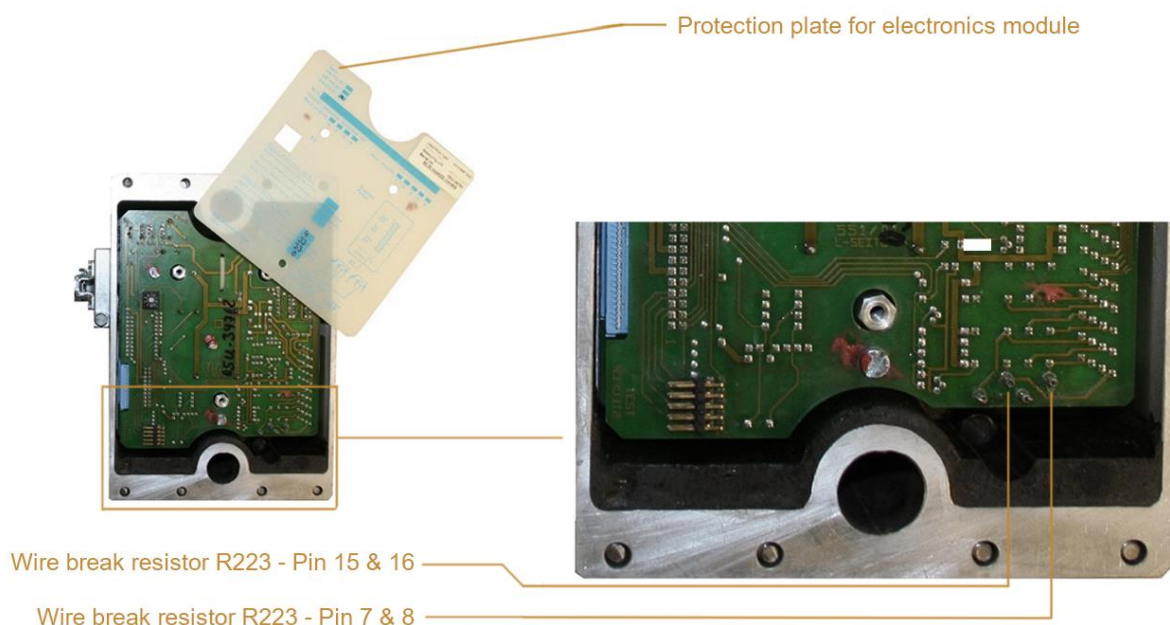
### **Important information:**

All Visatron oil mist detectors are equipped with wire break resistance for oil mist alarm. The wire break resistance is a set resistance value for the oil mist alarm and are connected between pin 7 & 8 and pin 15 & 16. It is important to make sure that the wire break resistance is correct according to the required resistance for the alarm shut down function of the engine. If the value is not correct according to required wire break resistance value (at the alarm shut down panel) – this may lead to a situation where you get no shut down or reduced RPM of the engine during a real high oil mist level alarm!

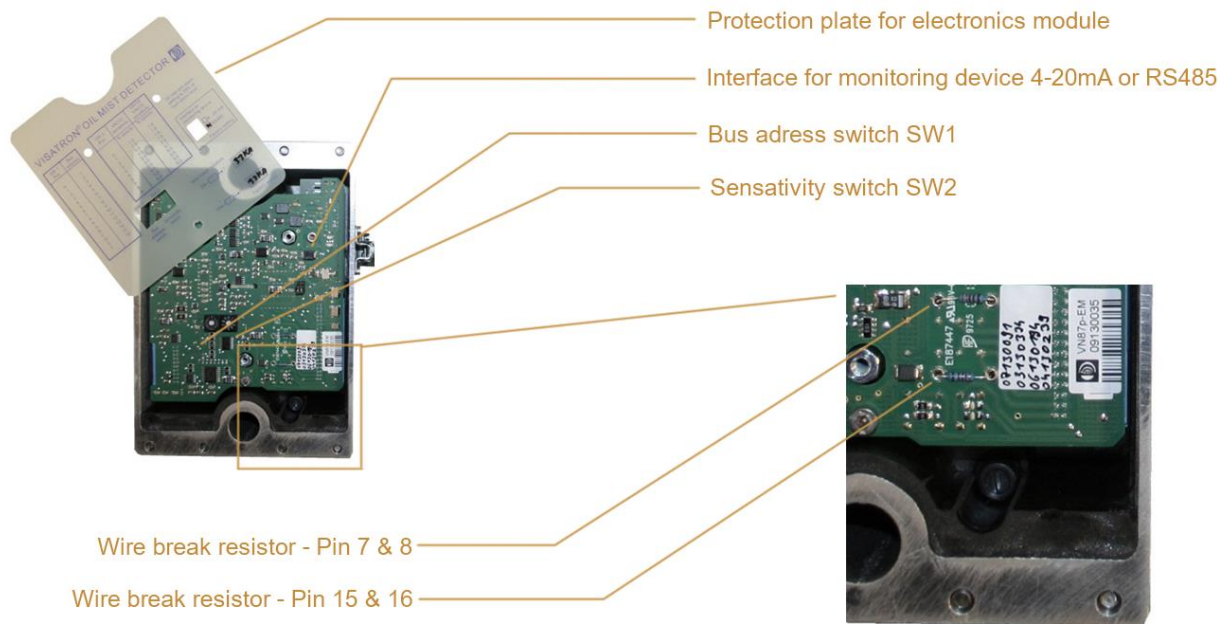
If you are replacing the complete oil mist detector or a measuring head with for example an exchange unit – you always need to check the documented wire break resistance on the “old” device. When you have this information, you need to check that it is the same wire break resistance value on the new device before starting up the engine. If the wire break resistance is different between the devices, you can transfer the wire break resistance (2 pc. presented on the backside of the electronic module placed in the measuring head) from the “old” device to the new device. Always make a proper test of your system when replacing measuring head or complete oil mist detector!



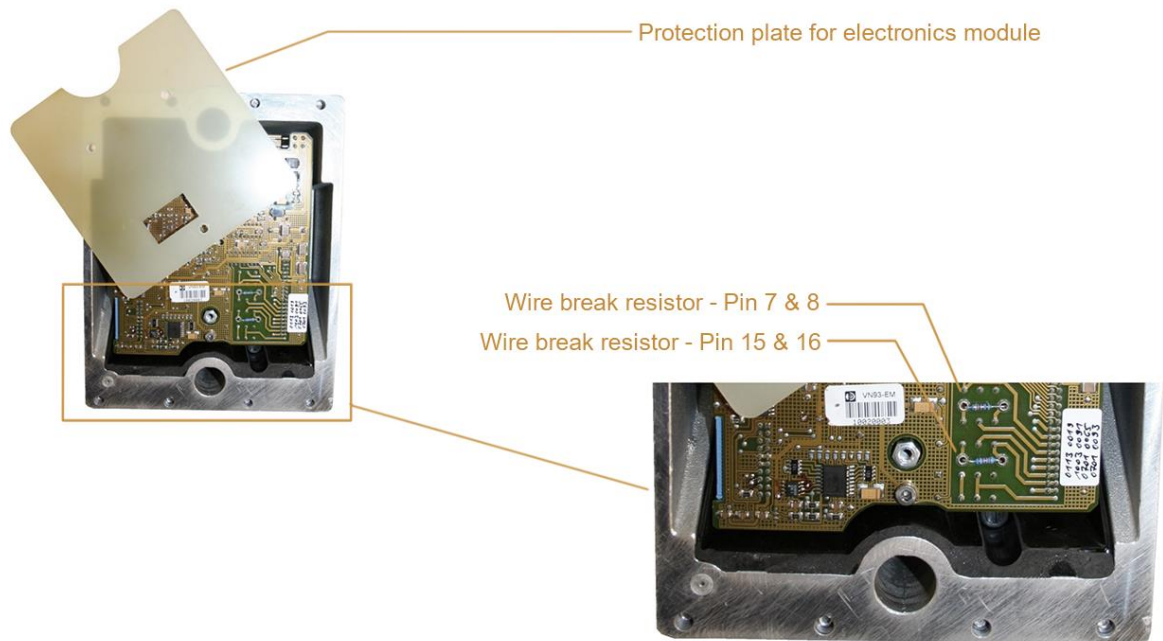
## Wire break resistance for VN/87 EMC



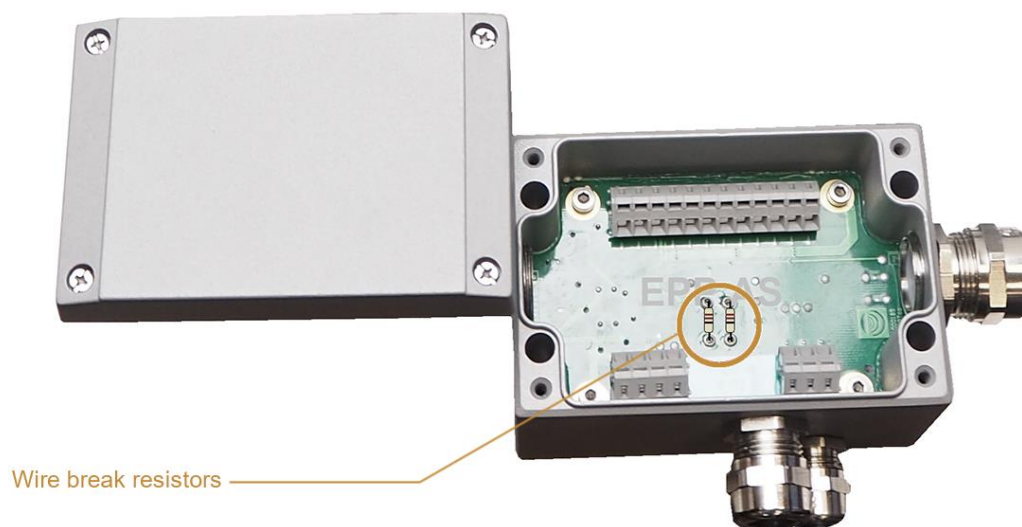
## Wire break resistance for VN/87plus



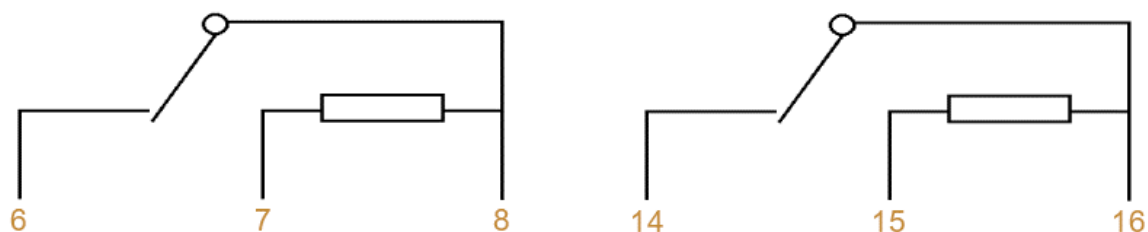
## Wire break resistance for VN/93



## Wire break resistance for VN/2020



## Alarm diagram for VN/87 EMC, VN/87plus & VN/93



### Part numbers for wire break resistors:

Part no.:	Value K ohm:	Other information:
100900-33,00K	33,00 K ohm	2 pc. per package incl. instruction fact sheet
100900-33,20K	33,20 K ohm	2 pc. per package incl. instruction fact sheet
100900-24,90K	24,90 K ohm	2 pc. per package incl. instruction fact sheet
100900-10,00K	10,00 K ohm	2 pc. per package incl. instruction fact sheet
100900-3,30K	3,30 K ohm	2 pc. per package incl. instruction fact sheet



For more information about wire break resistance:

<https://www.epp.no/exchange-pool/wire-break-resistance/>



## How to test the alarm system



**ATTENTION:** You must stop or slow down the engine during this test! Before starting the test, perform procedure 1 and 2 of the maintenance schedule for your system. The pipe system must be clean and if used – siphons to be filled with oil!

It is important to test your oil mist system regularly during maintenance work and replacement of measuring head or complete oil mist detector. It is important to ensure that the oil mist detector works according to the functionality instructions and that the alarm signal from the oil mist detector reaches the shutdown/reduced RPM function at the engine during an alarm situation!



### How to perform the test:

To perform the functionality test, we offer you the “Test plate kit for functional test of Oil Mist Detector” (Part no.: 11072). The kit contains a test plate and a test glass 10%.

Below are step-by-step instructions of how to perform the test.



1. Open the inspection cover on the measuring head.



2. The oil mist detection need to be in operation mode with negative pressure set to 60,00 mmWC



3. Place the test plate over the open chamber – the test plate will be sucked into position by the vacuum in the measuring head.



4. Press the 10% glass into the slit in the test plate.



5. Ensure that the glass is in a straight vertical position!



For more information and different test guides:

<https://www.epp.no/maintenance/>

## Recommended maintenance schedules

It is always a good solution to do maintenance on your Visatron oil mist detector system with a view to be precautionary in relation to technical problems. This eliminates the risk of downtime of the oil mist detector and the engine.

The routine maintenance schedule must be followed as described below. Valid for gas operation with TPS turbo charger, stationary power plant application and marine engines.

### Recommended maintenance schedule Visatron VN/87 EMC

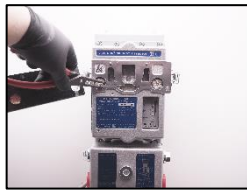
**NOTE: All maintenance steps should be performed while engine is stopped!**



	What to do:	Interval:	Part kit:
<b>Procedure 1</b>	<ul style="list-style-type: none"> <li>Check the negative pressure with u-tube manometer or digital manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmH<sub>2</sub>O!</li> </ul>	Every month or 650 engine running hours. (Whatever comes first)	<b>U-tube gauge kit</b> - Part no.: 270532
<b>Procedure 2</b>	<ul style="list-style-type: none"> <li>Replace the sintered bronze air filter/fresh air filter in the measuring head.</li> <li>Clean the fresh air bores in the measuring head. Use the cleaning needle.</li> <li>Clean both infrared sensor glasses in the measuring head with cotton pins and cleaning fluid.</li> <li>Perform functional test with test glass kit.</li> </ul>	Every 3 months or 2 000 engine running hours. (Whatever comes first)	<b>Filter kit VN/87 –</b> Part no.: 151481BU <b>Cleaning kit -</b> Part no.: 151482 <b>Test plate kit -</b> Part no.: 11072
<b>Procedure 3</b>	– Replace filter in pressure regulator.  <b>If you have a water separator:</b> <ul style="list-style-type: none"> <li>Replace filter cartridge of water separator.</li> </ul>	Every 6 months or 4 000 engine running hours. (Whatever comes first)	<b>Filter cartridge –</b> Part no.: 273119
<b>Procedure 4</b>	<ul style="list-style-type: none"> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> </ul>	Every 12 months or 8 000 engine running hours. (Whatever comes first)	<b>Maintenance kit VN115/87 EMC –</b> 100150-151483 <b>Maintenance kit VN116/87 EMC –</b> 100151-151484 <b>Maintenance kit VN215/87 EMC –</b> 100152-151485
<b>Procedure 5</b>  <b>Recommendation</b> <b>Use authorized service personnel for this procedure.</b>	<ul style="list-style-type: none"> <li>Replace measuring head. Use our Exchange Pool Service (ExP) for this procedure! <b><u>NOTE: When ordering an exchange unit - always inform us about engine type!</u></b></li> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Check sampling funnels/pipe system.</li> </ul> <b>If your system has siphon blocks:</b> <ul style="list-style-type: none"> <li>Replace rubber inserts and o-rings in siphon blocks.</li> </ul> <p><i>If you are ordering a complete exchange oil mist detector unit, there is no need to replace maintenance kit for base plate.</i></p>	Every 48 months or 32 000 engine running hours. (Whatever comes first)	<b>Maintenance kit VN115/87 EMC –</b> 100150-151483 & exchange unit!  <b>Maintenance kit VN116/87 EMC –</b> 100151-151484 & exchange unit!  <b>Maintenance kit VN215/87 EMC –</b> 100152-151485 & exchange unit!

**Procedure 2:**

1. Check the negative pressure with a u-tube manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmWC!



2. Replace the sintered bronze air filter/fresh air filter.



3. Clean the fresh air bones in the measuring head. Use the cleaning needle.



4. Clean the infrared sensor glasses at the left and the right side inside the measuring head. Use cotton sticks and cleaning fluid.

**Procedure 3:**

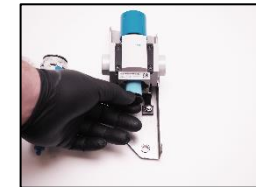
1. Close the air pressure.



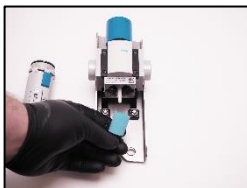
2. Hold the filter cage in one hand and pull the blue tab down horizontally with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



6. Reinstall the filter cage.



7. Install the quick connection.



8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC.



12. Disconnect the u-tube manometer and install the plug for inspection cover.



## Procedure 4:



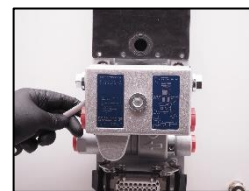
1. Stop the engine and reduce the incoming air pressure.



2. Disconnect the RESET connector.



3. Dismount the measuring head.



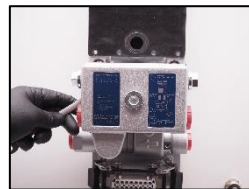
4. Disconnect the connection case.



5. Change the small seal.



6. Change the valve box seal.



7. Reconnect the connection case to the base plate.



8. Unscrew the vibration plate.



9. Change the upper and lower elastic mounting system.



10. Change the flexible bellows.



11. Reinstall the vibration plate to the base plate.



12. Change the measuring head seal.



13. Reinstall the measuring head at the vibration plate.



14. Open the inspection cover.



15. Change the scavenging air filter.



16. Change the seal for inspection cover.



17. Clean the infrared sensor glasses with cotton sticks and cleaning fluid.



18. Clean the bores with cleaning needle.



19. Change the screw plug seal 1/4"



20. Close inspection cover.



21. Unscrew the plugs at the connection case.



22. Change the screw plug seal 1/2"



23. Check the heating element if it is hot. If cold – replace!



24. Check all leaders in the main socket. If bad condition – replace!

**Procedure 5:**

**1.** Stop the engine and remove the measuring head.



**2.** Clean the inside and outside of the base plate and replace all the parts in the maintenance kit part no.: 100150-151483.



**3.** Install the new exchange measuring head. When starting up the OMD device, please check the negative pressure and adjust if necessary! See procedure 1. Make final test of the system to ensure that oil mist detector operation is safe.

## Maintenance schedule Visatron VN/87plus

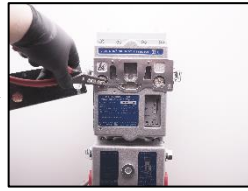
**NOTE: All maintenance steps should be performed while engine is stopped!**

Procedure no:	What to do:	Interval & Part kit to be used:
Procedure 1	<ul style="list-style-type: none"> <li>Check the negative pressure with u-tube manometer or digital manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmWC!</li> <li>Replace the sintered bronze air filter/fresh air filter in the measuring head.</li> <li>Clean both infrared sensor glasses in the measuring head with cotton pins and cleaning fluid.</li> <li>Perform functional test with test glass kit.</li> </ul>	<p><b>Every 3 months or 2 000 engine running hours – <u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Filter kit VN/87 – P/n.: 151481BU</p> <p>Cleaning kit – P/n.: 151482</p> <p>Test glass kit – P/n.: 11072</p>
Procedure 2	<ul style="list-style-type: none"> <li>Replace filter in pressure regulator.</li> </ul> <p><b>If you have a water separator:</b></p> <ul style="list-style-type: none"> <li>Replace filter cartridge of water separator.</li> </ul>	<p><b>Every 6 months or 4 000 engine running hours – <u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Filter cartridge – P/n.: 273119</p>
Procedure 3	<ul style="list-style-type: none"> <li>Inspection of gaskets, suspensions, and bellows. Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Check scavenging air outlet behind the control cover manually (low-right) by feeling the air stream.</li> </ul>	<p><b>Every 12 months or 8 000 engine running hours – <u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Yearly maintenance kit for: VN 115/87 – P/n.: 100150-151483 VN 116/87 – P/n.: 100151-151484 VN 215/87 – P/n.: 100152-151485</p>
Procedure 4	<ul style="list-style-type: none"> <li><b>Authorized service personnel will perform an inspection of complete OMD installation according to maker &amp; class requirements. Condition of main parts to be checked and replaced if necessary!</b></li> </ul> <p><b>For authorized service contact: epp@epp.no or phone: +47 92 46 32 20!</b></p>	<p><b>Every 24 months or 16 000 engine running hours – <u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Yearly maintenance kit for: VN 115/87 – P/n.: 100150-151483 VN 116/87 – P/n.: 100151-151484 VN 215/87 – P/n.: 100152-151485</p> <p>Cleaning kit – P/n.: 151482</p> <p>Smoke test kit – P/n.: 151780</p>
Procedure 5	<ul style="list-style-type: none"> <li><b>Authorized service personnel will perform an inspection of complete OMD installation according to maker &amp; class requirements. Condition of main parts to be checked and replaced if necessary!</b></li> </ul> <p><b>For authorized service contact: epp@epp.no or phone: +47 92 46 32 20!</b></p>	<p><b>Every 48 months or 32 000 engine running hours – <u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Yearly maintenance kit for: VN 115/87 – P/n.: 100150-151483 VN 116/87 – P/n.: 100151-151484 VN 215/87 – P/n.: 100152-151485</p> <p>Cleaning kit – P/n.: 151482</p> <p>Smoke test kit – P/n.: 151780</p> <p>Exchange oil mist detector components for: VN 115/87plus – P/n.: 11650EXP   P/n.: 11651EXP VN 116/87plus – P/n.: 11750EXP   P/n.: 11751EXP VN 215/87plus – P/n.: 11850EXP   P/n.: 11851EXP</p>



**Procedure 1:**

1. Check the negative pressure with a u-tube manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmWC!



2. Replace the sintered bronze air filter/fresh air filter.



3. Clean the fresh air bones in the measuring head. Use the cleaning needle.



4. Clean the infrared sensor glasses at the left and the right side inside the measuring head. Use cotton sticks and cleaning fluid.

**Procedure 2:**

1. Close the air pressure.



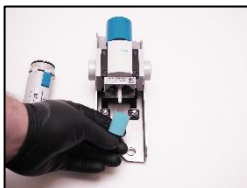
2. Hold the filter cage in one hand and pull the blue tab down horizontally with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



6. Reinstall the filter cage.



7. Install the quick connection.



8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC!



12. Disconnect the u-tube manometer and install the plug for inspection cover.

## Procedure 3:



1. Stop the engine and reduce the incoming air pressure.



2. Disconnect the RESET connector.



3. Dismount the measuring head.



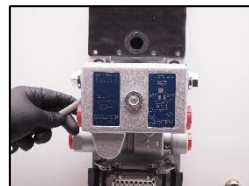
4. Disconnect the connection case.



5. Change the small seal.



6. Change the valve box seal.



7. Reconnect the connection case to the base plate.



8. Unscrew the vibration plate.



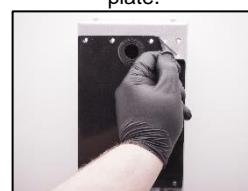
9. Change the upper and lower elastic mounting system.



10. Change the flexible bellows.



11. Reinstall the vibration plate to the base plate.



12. Change the measuring head seal.



13. Reinstall the measuring head at the vibration plate.



14. Open the inspection cover.



15. Change the scavenging air filter.



16. Change the seal for inspection cover.



17. Clean the infrared sensor glasses with cotton sticks and cleaning fluid.



18. Clean the bores with cleaning needle.



19. Change the screw plug seal 1/4"



20. Close inspection cover.



21. Unscrew the plugs at the connection case.



22. Change the screw plug seal 1/2"



23. Check the heating element if it is hot. If cold – replace!



24. Check all leaders in the main socket. If bad condition – replace!

**Procedure 4:**

**Authorized service personnel will perform an inspection of complete OMD installation according to maker & class requirements. Condition of main parts to be checked and replaced if necessary!**

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**Procedure 5:**

**Authorized service personnel will perform an inspection of complete OMD installation according to maker & class requirements. Condition of main parts to be checked and replaced if necessary!**

*Recommendation: If authorized service personnel are unable to be used for various reasons, exchange unit set can be replaced. If this option has been performed, please notify us at [epp@epp.no](mailto:epp@epp.no).*

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## Maintenance schedule Visatron VN/93

**NOTE: All maintenance steps should be performed while engine is stopped!**

Procedure no:	What to do:	Interval & Part kit to be used:
Procedure 1	<ul style="list-style-type: none"> <li>Check the negative pressure with u-tube manometer or digital manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmWC!</li> <li>Replace the sintered bronze air filter/fresh air filter in the measuring head.</li> <li>Clean both infrared sensor glasses in the measuring head with cotton pins and cleaning fluid.</li> <li>Perform functional test with test glass kit.</li> </ul>	<p>Every 3 months or 2 000 engine running hours – <b><u>whatever comes first!</u></b></p> <p><b>Kits to be used:</b> Filter kit VN/93 – P/n.: 151490BU</p> <p>Cleaning kit – P/n.: 151482</p> <p>Test glass kit – P/n.: 11072</p>
Procedure 2	<ul style="list-style-type: none"> <li>Replace filter in pressure regulator.</li> </ul> <p><b>If you have a water separator:</b></p> <ul style="list-style-type: none"> <li>Replace filter cartridge of water separator.</li> </ul>	<p>Every 6 months or 4 000 engine running hours – <b><u>whatever comes first!</u></b></p> <p>Filter cartridge – P/n.: 273119</p>
Procedure 3	<ul style="list-style-type: none"> <li>Replace complete service kit on OMD. Clean the inside &amp; outside of base plate.</li> <li>Check suspension on vibration plate – replace if necessary!</li> <li>Check performance of pressure regulator- replace parts if necessary!</li> <li>Clean suction pipes/ pipe system and siphon blocks with compressed air!</li> <li>Check scavenging air outlet behind the control cover manually (low-right) by feeling the air stream.</li> </ul>	<p>Every 12 months or 8 000 engine running hours – <b><u>whatever comes first!</u></b></p> <p><b>Yearly maintenance kit for:</b> VN 115/93 – P/n.: 100153-151489 VN 116/93 – P/n.: 100154-151487 VN 215/93 – P/n.: 100155-151488</p> <p>Mounting system – P/n.: 10991</p>
Procedure 4	<ul style="list-style-type: none"> <li><b>Authorized service personnel will perform an inspection of complete OMD installation according to maker &amp; class requirements. Condition of main parts to be checked and replaced if necessary!</b></li> </ul> <p><b>For authorized service contact:</b> <b>epp@epp.no or phone: +47 92 46 32 20!</b></p>	<p>Every 24 months or 16 000 engine running hours – <b><u>whatever comes first!</u></b></p> <p><b>Yearly maintenance kit for:</b> VN 115/93 – P/n.: 100153-151489 VN 116/93 – P/n.: 100154-151487 VN 215/93 – P/n.: 100155-151488</p> <p>Mounting system – P/n.: 10991</p> <p>Cleaning kit – P/n.: 151482</p> <p>Smoke test kit – P/n.: 151780</p>
Procedure 5	<ul style="list-style-type: none"> <li><b>Authorized service personnel will perform an inspection of complete OMD installation according to maker &amp; class requirements. Condition of main parts to be checked and replaced if necessary!</b></li> </ul> <p><b>For authorized service contact:</b> <b>epp@epp.no or phone: +47 92 46 32 20!</b></p>	<p>Every 48 months or 32 000 engine running hours – <b><u>whatever comes first!</u></b></p> <p><b>Yearly maintenance kit for:</b> VN 115/93 – P/n.: 100153-151489 VN 116/93 – P/n.: 100154-151487 VN 215/93 – P/n.: 100155-151488</p> <p>Mounting system – P/n.: 10991</p> <p>Cleaning kit – P/n.: 151482</p> <p>Smoke test kit – P/n.: 151780</p> <p><b>Exchange oil mist detector components for:</b> VN 115/93 – P/n.: 11200EXP   P/n.: 11201EXP VN 116/93 – P/n.: 11400EXP   P/n.: 11401EXP VN 215/93 – P/n.: 10900EXP   P/n.: 10901EXP</p>



**Procedure 1:**

1. Check the negative pressure with a u-tube manometer. Adjust if necessary! Setting level is 55.00 – 65.00 mmWC!



2. Replace the sintered bronze air filter/fresh air filter.



3. Clean the fresh air bones in the measuring head. Use the cleaning needle.



4. Clean the infrared sensor glasses at the left and the right side inside the measuring head. Use cotton sticks and cleaning fluid.

**Procedure 2:**

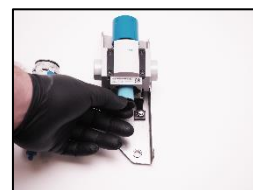
1. Close the air pressure.



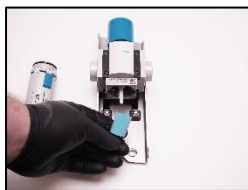
2. Hold the filter cage in one hand and pull the blue tab down horizontally with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



6. Reinstall the filter cage.



7. Install the quick connection.



8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC!



12. Disconnect the u-tube manometer and install the plug for inspection cover.

**Procedure 3:**

1. Stop the engine and reduce the incoming air pressure.



2. Disconnect the RESET connector.

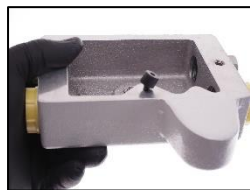


3. Dismount the measuring head.



4. Disconnect the connection case.





5. Change the small seal.



6. Change the valve box seal.



7. Reconnect the connection case to the base plate.



8. Unscrew the vibration plate.



9. Replace the mounting system.



10. Replace the flexible bellows.



11. Install the new vibration plate to the base plate.



12. Reinstall the measuring head at the vibration plate.



13. Open the inspection cover.



14. Change the scavenging air filter.



15. Change the seal for inspection cover.



16. Clean the infrared sensor glasses with cotton sticks and cleaning fluid.



17. Clean the bores with cleaning needle.



18. Change the screw plug seal 1/4" for inspection cover.



19. Close inspection cover.



20. Unscrew the plugs at the connection case.



21. Change the screw plug seal 1/2".



22. Check the heating element if it is hot. If cold – replace!



23. Check all leaders in the main socket. If bad condition – replace!

#### Procedure 4:

Authorized service personnel will perform an inspection of complete OMD installation according to maker & class requirements. Condition of main parts to be checked and replaced if necessary!

#### Procedure 5:

Authorized service personnel will perform an inspection of complete OMD installation according to maker & class requirements. Condition of main parts to be checked and replaced if necessary!

Recommendation: If authorized service personnel are unable to be used for various reasons, exchange unit set can be replaced. If this option has been performed, please notify us at [app@ep.no](mailto:app@ep.no).

## Maintenance schedule Visatron VN2020

By conducting regular maintenance, the product will have a long service life. If the maintenance intervals are not observed, the oil mist detector may fail prematurely. It is essential that you follow the given sequence for the work.

**NOTE: All maintenance steps should be performed while engine is stopped!**

	What to do:	Interval:	Part kit:
<b>Procedure 1</b>	<ul style="list-style-type: none"> <li>M1   Clean infrared sensors in measuring head and replace seal on inspection cover.</li> <li>M3   Exchange filter in pressure regulator and check negative pressure in measuring head.</li> <li>M5   Functional test with smoke test to be carried out.</li> </ul>	Every 6 months or 4 000 operating hours. (whatever comes first)	<b>Maintenance kit for VN2020 - small kit</b> – Part no.: 155006  <b>Cleaning kit</b> – Part no.: 151482  <b>Smoke test kit</b> – Part no.: 151780
<b>Procedure 2</b>	<ul style="list-style-type: none"> <li>M1   Clean infrared sensors in measuring head and replace seal on inspection cover.</li> <li>M2   Exchange seal on connection box and check bellows and suspension system between measuring head and base plate for damage.</li> <li>M3   Exchange filter in pressure regulator and check negative pressure in measuring head.</li> <li>M4   Clean suction/pipe system with compressed air.</li> <li>M5   Functional test with smoke test to be carried out.</li> </ul>	Every 12 months or 8 000 operating hours. (whatever comes first)	<b>Maintenance kit for VN2020</b> – Part no.: 155004  <b>Cleaning kit</b> – Part no.: 151482  <b>Smoke test kit</b> – Part no.: 151780
<b>Procedure 3</b>	<p><b>Main two-year service (2 years) by authorized and certified Schaller personnel only!</b></p> <ul style="list-style-type: none"> <li>Service and test of complete Oil Mist Detector installation incl. software check and upgrade if necessary.</li> <li>Replacement of mayor part kit for VN2020.</li> <li>Service certificate to be approved by authorized personnel!</li> </ul> <p><b>Please contact us for authorized personnel at: <a href="mailto:epp@epp.no">epp@epp.no</a></b></p>	Every 24 months or 16 000 operating hours. (whatever comes first)	

### M1 | Clean infrared sensors in measuring head and replace seal on inspection cover.



1. Loosen the captive screws on the inspection cover.



2. Open the inspection cover.



3. Use the cleaning fluid and cotton sticks.



4. Clean the glass on the transmitter diode on the right side until it is clean.



5. And clean the diode until the glass is clean.



6. Clean the surface and replace the gasket for inspection cover.



7. Close the inspection cover and hand tight the captive screws.



**M2 | Exchange seal on connection box and check bellows and suspensions.**



**1.** Disconnect the measuring head from the base plate.



**2.** Remove the base plate from protection cover base.



**3.** Unscrew the 4 pc. mounting bolts on the pipe connection box.



**4.** Clean the base plate for oil and dirt.



**5.** Use compressed air to the air channels into the base plate.



**6.** And into the ejector inlet and outlet chamber.



**7.** Clean the ejector in and out nozzle free for oil and dirt.



**8.** Replace the valve box gasket.



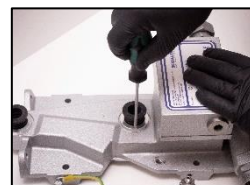
**9.** Install the pipe connection box.



**10.** Unscrew the 2 pc. screws, and remove the fastening ring for the upper bellow.



**11.** Check the upper bellow for damage, replace if necessary.



**12.** Unscrew the 2 pc. screws and remove the fastening ring for the lower bellow.



**13.** Check the lower bellow damage, replace if necessary.



**14.** Reinstall the fastening ring and ensure correct position of the bellows.



**15.** Check the upper and lower suspensions for any damage, replace if necessary.



**16.** Reinstall the vibration damping plate.



**17.** Ensure that position of the flexible bellows are correct.



**18.** Install the measuring head and tighten the captive screws with a torque of 4,5 Nm.



**M3 | Replace the filter in pressure regulator and check/adjust negative pressure in measuring head.**


1. Close the air pressure.



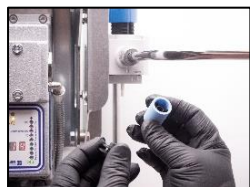
2. Hold the filter cage one hand and pull the blue tab down with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



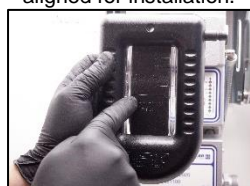
6. Reinstall the filter cage.



7. Install the quick connection.



8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC!



12. Disconnect the u-tube manometer and install the plug for inspection cover.

**M4 | Clean suction/pipe system with compressed air.**


1. Loosen the main pipe connection.



2. Remove the pipe from oil mist detector.



3. Blow compressed air into the main pipe for few seconds so collected oil will drain back to the engine.

**The procedure to be done on the right and left side!**

M5 | Functional test with smoke test to be carried out.



**CAUTION!**

The oil mist alarm will now be triggered, showing alarm LED lighting up and the engine will be shutting down/reducing the RPM.



1. Remove the plug in the inspection cover.



2. Install the test plug at the inspection cover.



3. Bend the smoke house until tube content break.



4. Pull the hose into the test pump.



5. Pump smoke until the oil mist alarm is realised.



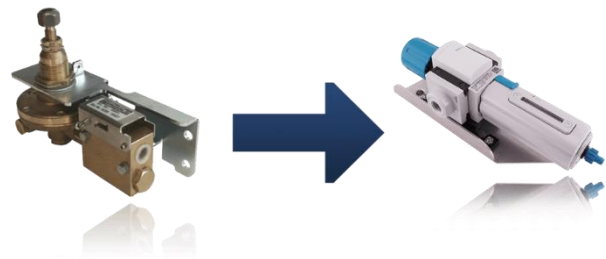
6. When the oil mist concentration is high, the LED indicator will increase and at 70% opacity of the set alarm threshold, the "Oil Mist Alarm" LED turns on. At 100% opacity relative to the set alarm threshold, the "Oil Mist Alarm" LED will start flashing. If the opacity subsequently decreases, the alarm status is saved. The opacity is displayed on the LED level indicator on the right. If the top LED comes on, the opacity has reached/exceeded the oil mist alarm threshold. The alarm condition can only be reset by pressing the oil mist alarm reset button.



7. Each extraction point is now checked individually. To do this, hold the smoke tube directly under the suction funnel of the individual extraction point and perform at least 3 – 5 pumping strokes. The resulting smoke should now be drawn out directly via the suction funnels. After no more than 10 seconds, the oil mist detector should indicate an alarm on the measuring head display. The time to display varies depending on the engine type and the installation kit.

# Pressure regulator modification

Along with Visatron VN2020 came Schaller Automations new pressure regulator, effectively retiring the old one. If you now need a new pressure regulator, but you have the old model you will need to modify your system to be able to fit the 2020 regulator.

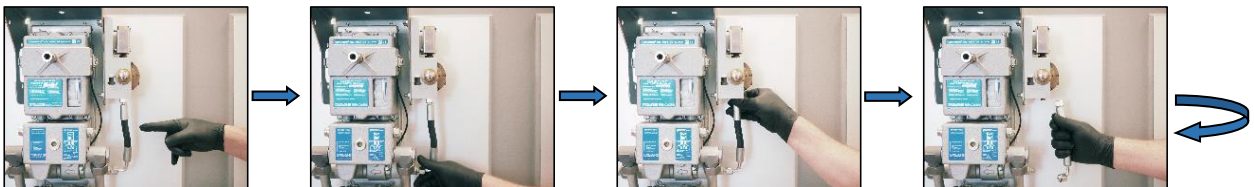


**Note: For customers using the old pressure regulator (Part nr.: 10001) – modification to fit the new pressure regulator (Part nr.: 273440) is needed!**

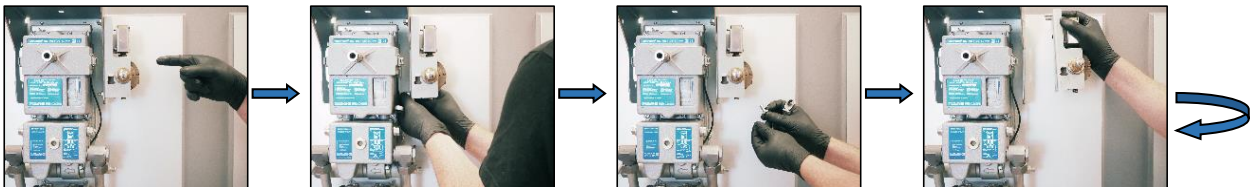
The reason for this modification is to ensure safe operation where it is possible to replace spare parts, etc. Spare part for the old pressure regulator that will still be available:

- Sintered bronze filter for pressure regulator | Part nr.: 10002
- O-ring | Part nr.: 10003, 10004 & 10679

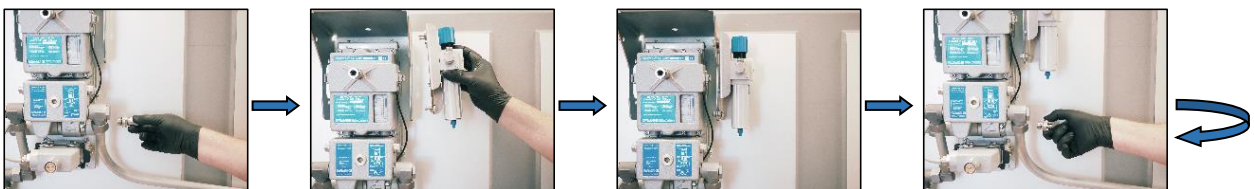
All other spare parts are discontinued.



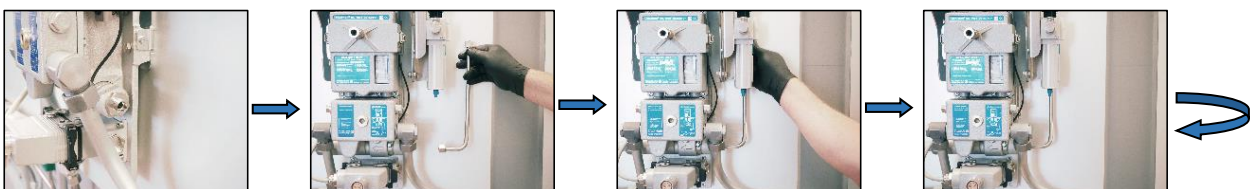
1. Unscrew and remove the air supply hose connecting the pressure regulator to the oil mist detector.



2. Unscrew and remove the old pressure regulator.



3. Remove the old adapter from the ejector input, install the new pressure regulator and screw in the new adapter.



4. Install the new air supply pipe from the ejector input adapter to the socket in the back of the new regulator.



5. Finally connect the new pressure regulator to your air supply system with the new air supply hose and use a u-tube manometer to test and adjust the negative pressure to 55.00 – 65.00 mmWC!



## Pressure regulator maintenance and pressure adjustment

Proper maintenance and pressure adjustment is vital to correct operation of an oil mist detector system. Too low pressure will render the system useless and too high pressure may lead to complete engine stop during sailing due to high concentration of oil mist entering the measuring head.

For these reasons, we have created a demonstration of how to correctly perform these tasks below. If these steps are followed your pressure regulator will not cause any of the problems listed above.

### How to maintenance your pressure regulator | 243220.



1. Close the air pressure.



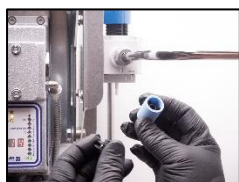
2. Hold the filter cage one hand and pull the blue tab down with your thumb.



3. Turn the filter cage clockwise and pull out downwards.



4. Unscrew the black plastic disc and remove the dirty filter.



5. Screw in the new filter counter clockwise and make sure that it is aligned for installation.



6. Reinstall the filter cage.



7. Install the quick connection.



8. Fill in slacked water in the u-tube manometer.



9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC!



12. Disconnect the u-tube manometer and install the plug for inspection cover.

### How to maintenance your old pressure regulator | 10001.



1. Turn off air supply to the oil mist detector.



2. Unscrew the plug next to the air supply input.



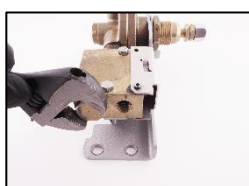
3. Use a small flat screwdriver to loosen the gasket, extract the gasket and filter.



4. Replace the gasket and filter



5. Insert the new gasket and filter onto the plug as shown.



6. Insert the plug and tighten.



7. Turn on the air supply again and install the quick connection.



8. Fill in slacked water in the u-tube manometer.







9. To the middle line.



10. Install the u-tube manometer.



11. Adjust the air pressure to 55.00 – 65.00 mmWC!



12. Disconnect the u-tube manometer and install the plug for inspection cover.

### How to check and adjust pressure w/ analogue u-tube manometer.



1. Install the quick connection.



2. Fill in slacked water in the u-tube manometer.



3. To the middle line.



4. Install the u-tube manometer.



5. Adjust the air pressure to 55.00 – 65.00 mmWC!



6. Disconnect the u-tube manometer and install the plug for inspection cover.

### How to check and adjust pressure w/ digital u-tube manometer.



1. Install the quick connection.



2. Connect the digital u-tube manometer to quick connection.



3. Adjust the air pressure to 55.00 – 65.00 mmWC!



4. Disconnect the u-tube manometer and install the plug for inspection cover.

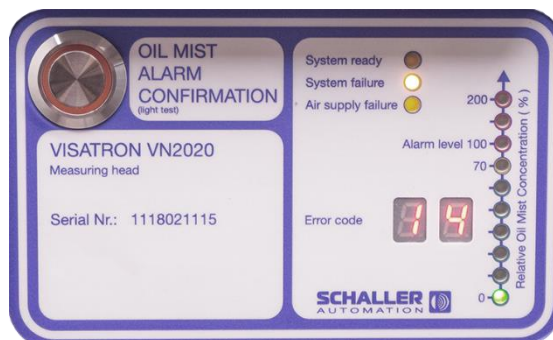
## Troubleshooting

If an internal or a system failure occurs, the diagnostics system shows the failure condition by a LED on the LED bar. The error codes are shown in the sites below. A detected oil mist alarm is displayed at this time with the TEST relay not switched on.

Below you will find step-by-step guides on how to solve the various error codes, along with links and QR-codes to the website.

Follow the steps as described, if the previous step did not solve the problem – go to the next step!

**Caution! Fault location must be done when the engine is stopped!**



### Visatron VN/87 EMC

#### LED 14 | Negative pressure/airflow is too low.

##### Step 1:



1. Close the air pressure.



2. Remove the plug at the inspection cover.



3. Install the u-tube manometer.



4. Turn up the pressure until it reaches 60 mmWC!



5. LED 14 will stop blinking, and the OMD will go back to ready.

##### Step 2:



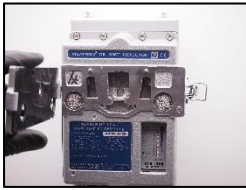
1. Open the inspection cover.



2. Replace the sintered bronze air filter/fresh air filter and circlips.



3. Close the inspection cover.

**Step 3:**

1. Open the inspection cover.



2. Use cleaning needle and clean the fresh air bores on the left and right side.



3. Close the inspection cover.

**Step 4:**

1. Remove the measuring head.



2. Check the measuring head gasket. If damaged, replace it.



3. Check the flexible bellows. If damaged, replace them.

**Step 5:**

1. Disconnect the ejector input.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector input.

**Step 6:**

1. Disconnect the ejector output.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector output.

**Step 7:**

1. Replace the measuring head with an exchange unit.

## LED 13 | Optical sensor is dirty

### Step 1:



1. Open the inspection cover.



2. The infrared filter glasses may be dirty.



3. Clean the glasses with a cotton stick and technical alcohol.



4. Close the inspection cover.

### Step 2:



1. Replace the measuring head with an exchange unit.

## LED 12 | Voltage of internal battery is too low

### Step 1:



1. Press the RESET button several times.

If this does not work, perform step 2!

### Step 2:



1. Replace the measuring head with an exchange unit.

## LED 11 | Ambient temperature is too low

### Step 1:

Engine compartment ventilator lows cold air into the device. Change blowing direction of ventilator away from the OMD. Install heating element for measuring head (Part no.: 10671) and scavenging air set (Part no.: 10798).

### Step 2:



1. Replace the measuring head with an exchange unit.



---

**LED 10 | Ambient temperature above 70°C****Step 1:**

Protect device against sources of heat radiation. Install scavenging air set.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**LED 9 | Electronic temperature is too low****Step 1:**

Check if engine room ventilator blows air directly at the OMD device. Change blowing direction of the ventilator to ensure that cold air is not directed at the OMD device. Check measuring head heating if this component is defect.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**LED 8 | Electronic temperature is too high****Step 1:**

Protect device against sources of heat radiation, install metal heat shields against radiation if necessary and improve fresh air circulation. Install scavenging air set.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

## LED 7 | RESET button defective

### Step 1:



1. Check if the RESET button is blocked. Eliminate blocking when pushing the RESET button a few times.

If this does not work, perform step 2!

### Step 2:



1. Replace the measuring head with an exchange unit.

---

## LED 6 | LED not in use

### Step 1:



1. Replace the measuring head with an exchange unit.

---

## LED 5 | Switch for adjusting sensitivity defective

### Step 1:



1. Replace the measuring head with an exchange unit.

---

## LED 4 | Optical sensor defective

### Step 1:



1. Open the inspection cover.



2. The infrared filter glasses may be dirty.



3. Clean the glasses with a cotton stick and technical alcohol.



4. Close the inspection cover.

### Step 2:



1. Replace the measuring head with an exchange unit.

---

## LED 3 | Airflow sensor defective

### Step 1:



1. Replace the measuring head with an exchange unit.

---

## LED 2 | Electronic module defective

### Step 1:



1. Replace the measuring head with an exchange unit.

---

**LED 1 | Electronic module defective****Step 1:**

1. Replace the measuring head with an exchange unit.

---

**All LEDs are dead/no lights | Optical sensor defective****Step 1:**

1. Remove the RESET task house.



2. Measure supply voltage between pin 1 and 2 to be 18 and 31,2 V dc.



3. If voltage is ok – remove the measuring head.



4. Replace the 2A fuse.

**Step 2:**

1. Replace the measuring head with an exchange unit.



<https://www.epp.no/troubleshooting/fault-indication-vn-87/>



## Visatron VN/87plus

**LED 14 | Negative pressure/airflow is too low.****Step 1:**

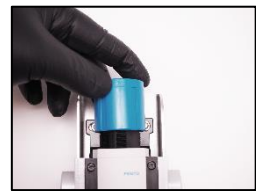
1. Close the air pressure.



2. Remove the plug at the inspection cover.



3. Install the u-tube manometer.



4. Turn up the pressure until it reaches 55.00 – 65.00 mmWC!



5. LED 14 will stop blinking, and the OMD will go back to ready.

**Step 2:**

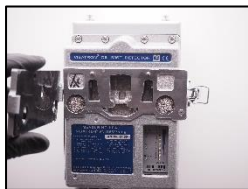
1. Open the inspection cover.



2. Replace the sintered bronze air filter/fresh air filter and circlips.



3. Close the inspection cover.

**Step 3:**

1. Open the inspection cover.



2. Use cleaning needle and clean the fresh air bores on the left and right side.



3. Close the inspection cover.

**Step 4:**

1. Remove the measuring head.



2. Check the measuring head gasket. If damaged, replace it.



3. Check the flexible bellows. If damaged, replace them.

## Step 5:



1. Disconnect the ejector input.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector input.

## Step 6:



1. Disconnect the ejector output.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector output.

## Step 7:



1. Replace the measuring head with an exchange unit.

## LED 13 | Optical sensor is dirty

### Step 1:



1. Open the inspection cover.



2. The infrared filter glasses may be dirty.



3. Clean the glasses with a cotton stick and technical alcohol.



4. Close the inspection cover.

### Step 2:



1. Replace the measuring head with an exchange unit.

**LED 12 | Voltage of internal battery is too low****Step 1:**

1. Replace the measuring head with an exchange unit.

---

**LED 11 | Ambient temperature is too low****Step 1:**

Engine compartment ventilator lows cold air into the device. Change blowing direction of ventilator away from the OMD. Check measuring head heating if this component is defect.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**LED 10 | Ambient temperature above 70°C****Step 1:**

Protect device against sources of heat radiation.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

## LED 9 | Electronic temperature is too low

### Step 1:

Check if engine room ventilator blows air directly at the OMD device. Change blowing direction of the ventilator to ensure that cold air is not directed at the OMD device. Check measuring head heating if this component is defect.

### Step 2:



1. Replace the measuring head with an exchange unit.

---

## LED 8 | Electronic temperature is too high

### Step 1:

Protect device against sources of heat radiation, install metal heat shields against radiation if necessary and improve fresh air circulation.

### Step 2:



1. Replace the measuring head with an exchange unit.

---

## LED 7 | RESET button defective

### Step 1:



1. Check if the RESET button is blocked. Eliminate blocking when pushing the RESET button a few times.

If this does not work, perform step 2!

### Step 2:



1. Replace the measuring head with an exchange unit.



**LED 6 | Supply voltage too high****Step 1:**

1. Measure supply voltage between pin 1 and 2 to be 18 and 31,2 V dc.

If this does not work, perform step 2!

**Step 2:**

1. Replace the measuring head with an exchange unit.

**LED 5 | Switch for adjusting sensitivity defective****Step 1:**

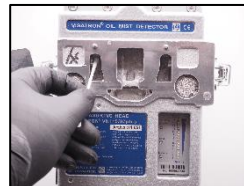
1. Replace the measuring head with an exchange unit.

**LED 4 | Optical sensor defective****Step 1:**

1. Open the inspection cover.



2. The infrared filter glasses may be dirty.



3. Clean the glasses with a cotton stick and technical alcohol.



4. Close the inspection cover.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

### LED 3 | Airflow sensor defective

#### Step 1:



1. Replace the measuring head with an exchange unit.

---

### LED 2 | Electronic module defective

#### Step 1:



1. Replace the measuring head with an exchange unit.

---

### LED 1 | Electronic module defective

#### Step 1:



1. Replace the measuring head with an exchange unit.

---

**All LEDs are dead/no lights | Optical sensor defective****Step 1:**

1. Remove the RESET task house.



2. Measure supply voltage between pin 1 and 2 to be 18 and 31,2 V dc.



3. If voltage is ok – remove the measuring head.



4. Replace the 2A fuse.

**Step 2:**

1. Replace the measuring head with an exchange unit.



<https://www.epp.no/troubleshooting/fault-indication-vn-87plus/>

## Visatron VN/93

**Error 18 | Voltage of internal battery too low****Step 1:**

1. Replace the measuring head with an exchange unit.

---

**Error 17 | Electronic module defective****Step 1:**

1. Replace the measuring head with an exchange unit.

---

**Error 16 | Electronic module defective****Step 1:**

1. Replace the measuring head with an exchange unit.

---

**Error 15 | Optical sensor dirty****Step 1:**

1. Open the inspection cover.



2. Clean the infrared sensor glasses on the right and left side with cotton sticks and technical alcohol.

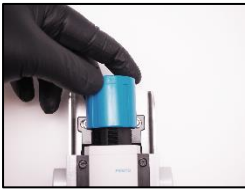


3. Close the inspection cover.



**Step 2:**

1. Replace the measuring head with an exchange unit.

**Error 14 | Negative pressure / airflow too low****Step 1:**

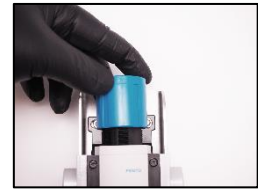
1. Turn off the pressure regulator.



2. Remove the plug at the inspection cover and install quick connection.



3. Install the u-tube manometer.



4. Turn up the pressure until it reaches 55.00 – 65.00 mmWC!



5. The LED 14 will stop blinking, and the OMD will go back to "Ready" mode.

**Step 2:**

1. Open the inspection cover.



2. Replace the scavenging air filters and fresh air restrictors.



3. Close the inspection cover.

**Step 3:**

1. Open the inspection cover.



2. Clean the fresh air bores on the right and left side with a cleaning needle.



3. Close the inspection cover.

#### Step 4:



1. Remove the measuring head.



2. Check the measuring head gasket. If damaged, replace the gasket.



3. Check the flexible bellows. If damaged, replace the flexible bellows.



4. Check the flexible bellow for fresh air. Replace if necessary!

#### Step 5:



1. Disconnect the ejector input.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector input.

#### Step 6:



1. Disconnect the ejector input.



2. Clean the unit with clean spray for OMD.



3. Reinstall the ejector input.

#### Step 7:



1. Replace the measuring head with an exchange unit.

### Error 13 | Optical sensor dirty

#### Step 1:



1. Open the inspection cover.



2. Clean the infrared sensor glasses on the right and left side with cotton sticks and technical alcohol.



3. Clean the fresh air bores on the right and left side with a cleaning needle.



4. Close the inspection cover.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 12 | Checksum error****Step 1:**

Repeat parameter setting – see instruction manual!

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 11 | Ambient temperature too low****Step 1:**

Engine compartment ventilator blows cold air into the device. Change blowing direction of ventilator away from the OMD. Check measuring head heating if this component is defect.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 10 | Ambient temperature above 70°C****Step 1:**

Remove or turn away ambient heating components. Install metal shields against radiation. Install vortex coolers.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 9 | Electronic temperature too low****Step 1:**

Engine compartment ventilator blows cold air into the device. Change blowing direction of ventilator away from the OMD. Check measuring head heating if this component is defect.

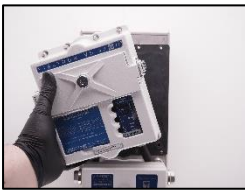
**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 8 | Electronic temperature too high****Step 1:**

Remove or turn away ambient heating components. Install metal shields against radiation. Install vortex coolers.

**Step 2:**

1. Replace the measuring head with an exchange unit.

---

**Error 7 | Light button defective****Step 1:**

Clean the glass LED plate.

If this does not help, perform step 2.



**Step 2:**

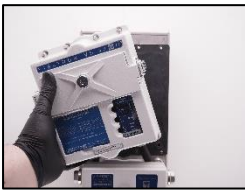
1. Replace the measuring head with an exchange unit.

**Error 6 | Supply voltage too high****Step 1:**

1. Remove the reset task house.



2. Measure the voltage between pin 1 & 2 to be between 18 and 31,2 V DC. Readjust the voltage if necessary!

**Step 2:**

1. Replace the measuring head with an exchange unit.

**Error 4 | Optical sensor defective****Step 1:**

1. Open the inspection cover.



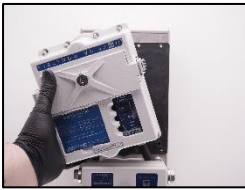
2. Clean the infrared sensor glasses on the right and left side with cotton sticks and technical alcohol.



3. Close the inspection cover.

**Step 2:**

1. Replace the measuring head with an exchange unit.

**Error 3 | Airflow sensor defective****Step 1:**

1. Replace the measuring head with an exchange unit.

**Error 2 | Airflow sensor defective****Step 1:**

1. Replace the measuring head with an exchange unit.

**All LEDs off | No power on the unit****Step 1:**

1. Remove the reset task house.



2. Measure the voltage between pin 1 & 2 to be between 18 and 31,2 V DC.



3. If voltage is ok – remove the measuring head.



4. Replace the 3,15 A fuse.

**Step 2:**

1. Replace the measuring head with an exchange unit.



<https://www.epp.no/troubleshooting/fault-indication-vn-93/>

---

## Visatron VN2020

Error code:\_\_\_ | All LEDs off

### Step 1:



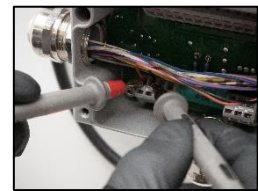
1. Unscrew the four screws on the connection box.



2. Open the cover on the connection box.



3. Use a voltmeter to measure 24 V DC power.



4. Over pin +/- at 24 V DC.



5. Check if you get 24 V DC. If reading is not between 18.00 31.20 V DC – replace the power supply!

### Step 2:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Check the fuse. If broken – replace the fuse.

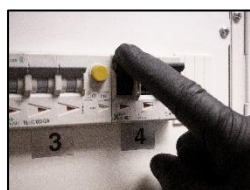


4. Install the measuring head. Tighten the captive screws crosswise with torque of 4.5 Nm.



5. Turn on the power to the oil mist detector.



**Step 3:**

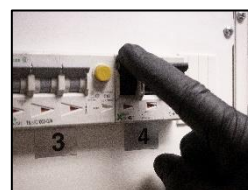
1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Install the inspection cover.



6. Connect the quick connection.



7. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



8. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 02 | Electronic module faulty****Step 1:**

1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.

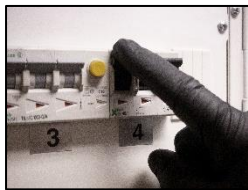


6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

---

**Error code: 03 | Airflow sensor faulty**
**Step 1:**

1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

---

**Error code: 04 | Optical sensor faulty**
**Step 1:**

1. Unscrew the four bolts on the inspection cover.



2. Open the inspection cover.



3. Use cleaning fluid and cotton sticks.



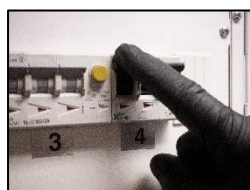
4. To clean the infrared sensor on left side.



5. And right side until no dirt shown on the cotton sticks.



6. Close the inspection cover.

**Step 2:**

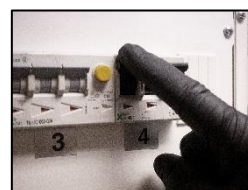
1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 05 - 07 | Internal error****Step 1:**

1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

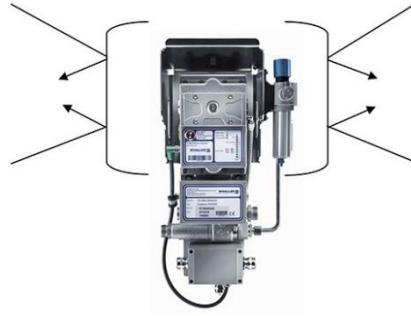
**Error code: 08 | Electronics temperature too high (>75°C)****Step 1:**

Remove or relocate objects nearby emitting heat.



### Step 2:

Install metallic heat shields to shield against heat radiation.



### Step 3:



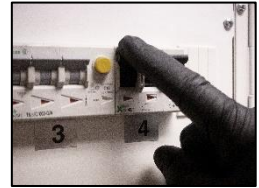
1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 - 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 09 | Electronics temperature too low (>0°C)

### Step 1:

Remove or relocate objects nearby that are cooling.

### Step 2:



1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 - 65.00 mmWC!



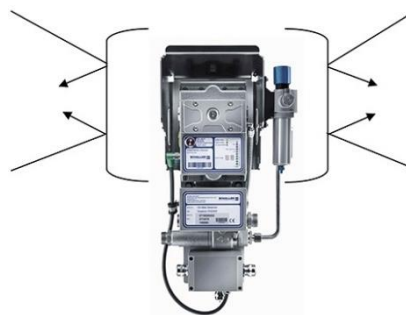
7. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 10 | Ambient temperature too high (>75°C)****Step 1:**

Remove or relocate objects nearby emitting heat.

**Step 2:**

Install metallic heat shields to shield against heat radiation.

**Step 3:**

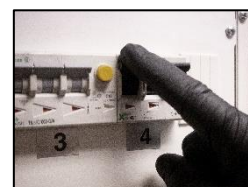
1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 11 | Ambient temperature too low (>0°C)****Step 1:**

Remove or relocate objects nearby that are cooling.



## Step 2:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



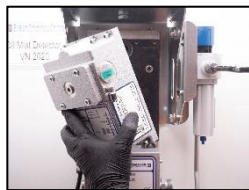
7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 12 | Internal memory checksum error

### Step 1:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 13 | Optical sensor dirty

### Step 1:



1. Unscrew the four bolts on the inspection cover.



2. Open the inspection cover.



3. Use cleaning fluid and cotton sticks.



4. To clean the infrared sensor on left side.



5. And right side until no dirt shown on the cotton sticks.



6. Close the inspection cover.

### Step 2:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



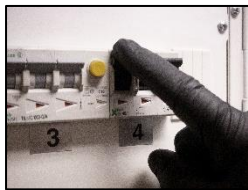
6. Connect the u-tube manometer and adjust the negative pressure to 55.00 - 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 14 | Supply pressure not within permissible range**

**Step 1:**



1. Open the plug at the cover on the measuring head.



2. Install the quick connection.



3. Fill in slacked water into the u-tube manometer.



4. Fill up to marked line on the u-tube manometer.



5. The negative pressure into the measuring head should be 55.00 – 65.00 mmWC. Adjust if necessary!



6. Disconnect the u-tube manometer and install the plug for inspection cover.



7. Loosen the 4 pcs. bolt for inspection cover.



8. Open the inspection cover.

**Step 2:**



1. Close the air pressure.



2. Pull the blue tap down.



3. Turn the filter housing to the left and pull the housing down.



4. Unscrew the blue filter and replace it.



5. Re-install the housing.



6. Turn up the air pressure.



7. And adjust the pressure to 55.00 – 65.00 mmWC!



8. Install the plug and the detector is ready for operation!



## Step 3 &amp; 4:



1. Turn off the power.



2. Disconnect the measuring head from the base plate.



3. Disconnect the base plate from the connection cover.



4. Loosen the bolts for pipe connection box.



5. Replace the valve box gasket.



6. Clean the large hole in the base plate with cleaning fluid and cotton pins.



7. Use the cleaning needle to open the small hole for dirt and oil.



8. Reinstall the pipe connection box.



9. Disconnect the upper flexible bellow.



10. Disconnect the lower flexible bellow.



11. Check the flexible bellows.



12. Replace if necessary!



13. Check lower and upper measuring head suspensions for damage.



14. Replace the suspensions if necessary! Install the flexible damping plate back on the base plate.



15. Ensure that position for the flexible bellow is correct.



16. Check that grounding cable is connected at the flexible damping plate and the base plate.



17. Install the base plate to the protection cover.



18. Install the measuring head on the base plate.



19. Unscrew the 4 pcs. bolts on the inspection cover.



20. Open the inspection cover.



21. Replace the inspection seal.



22. Use the cleaning liquid and cotton sticks.



23. Clean the infrared sensor glass on the right side.



24. And the left side.



25. Install the inspection cover.



26. Connect the quick connection.



27. Connect the u-tube manometer and adjust the negative pressure to 60.00mmWC!



28. Remove the quick connection, and the oil mist detector is ready for operation!

## Step 5:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 15 | Optical sensor very dirty – cleaning must be carried out

### Step 1:



1. Unscrew the four bolts on the inspection cover.



2. Open the inspection cover.



3. Use cleaning fluid and cotton sticks.



4. To clean the infrared sensor on left side.



5. And right side until no dirt shown on the cotton sticks.



6. Close the inspection cover.



**Step 2:**

1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

**Error code: 16 | Optical sensor faulty****Step 1:**

1. Unscrew the four bolts on the inspection cover.



2. Open the inspection cover.



3. Use cleaning fluid and cotton sticks.



4. To clean the infrared sensor on left side.



5. And right side until no dirt shown on the cotton sticks.

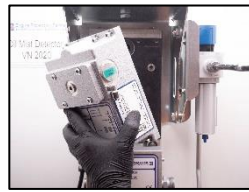


6. Close the inspection cover.

**Step 2:**



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!

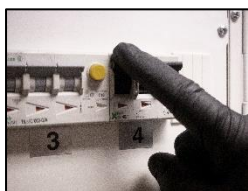


7. Remove the quick connection, and the oil mist detector is ready for operation!

---

**Error code: 17 | Internal memory checksum error**

**Step 1:**



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 18 | Battery voltage too low

### Step 1:



1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. The memory battery is located in the left higher corner inside the measuring head. Disconnect the battery connector from the circuit board.



4. Loosen the screw of the security clamp, turn the security clamp to the side.



5. And remove the battery.



6. Install new battery in correct position. Connect the battery connector to the plug at the circuit board.



7. Position the securing clamp over the battery. Tighten the screw connection to 2.5 Nm.



8. Install the measuring head.



9. Open the plug at the cover on the measuring head.



10. Install the quick connection.



11. Fill in slacked water into the u-tube manometer.



12. Fill up to marked line on the u-tube manometer.



13. The negative pressure into the measuring head should be 55.00 – 65.00 mmWC. Adjust if necessary!

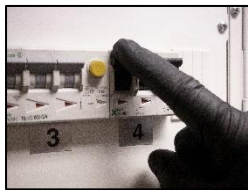


14. Remove the quick connection and reinstall the plug. The oil mist detector is ready for operation!

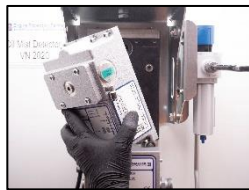


## Error code: 19 | Reset button faulty

### Step 1:



1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



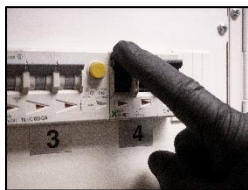
6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 20 - 31 | Internal error

### Step 1:



1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



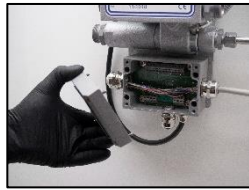
7. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 32 | Power supply not within permissible range

### Step 1:



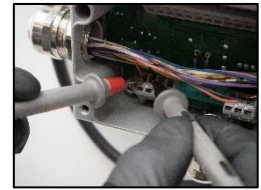
1. Unscrew the four screws on the connection box.



2. Open the cover on the connection box.



3. Use a voltmeter to measure 24 V DC power.



4. Over pin +/- at 24 V DC.



5. Check if you get 24 V DC. If reading is not between 18.00 31.20 V DC – replace the power supply!

### Step 2:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Check the fuse. If broken – replace the fuse.



4. Install the measuring head. Tighten the captive screws crosswise with torque of 4.5 Nm.



5. Turn on the power to the oil mist detector.



## Step 3:



1. Turn off the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Install the inspection cover.



6. Connect the quick connection.



7. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



8. Remove the quick connection, and the oil mist detector is ready for operation!

## Error code: 33 | Supply pressure too high

### Step 1:



1. Open the plug at the cover on the measuring head.



2. Install the quick connection.



3. Fill in slacked water into the u-tube manometer.



4. Fill up to marked line to the u-tube manometer.

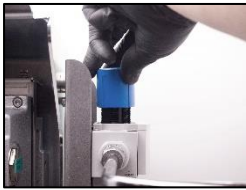


5. The negative pressure into the measuring head should be 55.00 – 65.00 mmWC. Adjust if necessary!



6. Disconnect the u-tube manometer and install the plug for inspection cover.

### Step 2:



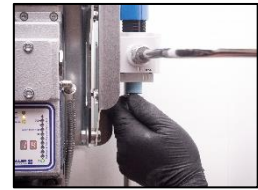
1. Close the air pressure.



2. Pull the blue tap down.



3. Turn the filter housing to the left and pull the housing down.



4. Unscrew the blue filter and replace it.



5. Re-install the housing.



6. Turn up the air pressure.



7. And adjust the pressure to 55.00 – 65.00 mmWC!



8. Install the plug and the detector is ready for operation!

### Step 3:



1. Replace the pressure regulator.

## Error code: 34 | CANopen initialization failed

### Step 1:



1. Turn of the power to the oil mist detector.



2. Remove the measuring head.



3. Replace the measuring head. Tighten the captive screws crosswise with torque of 4.5Nm.



4. Turn on the power again.



5. Connect the quick connection.



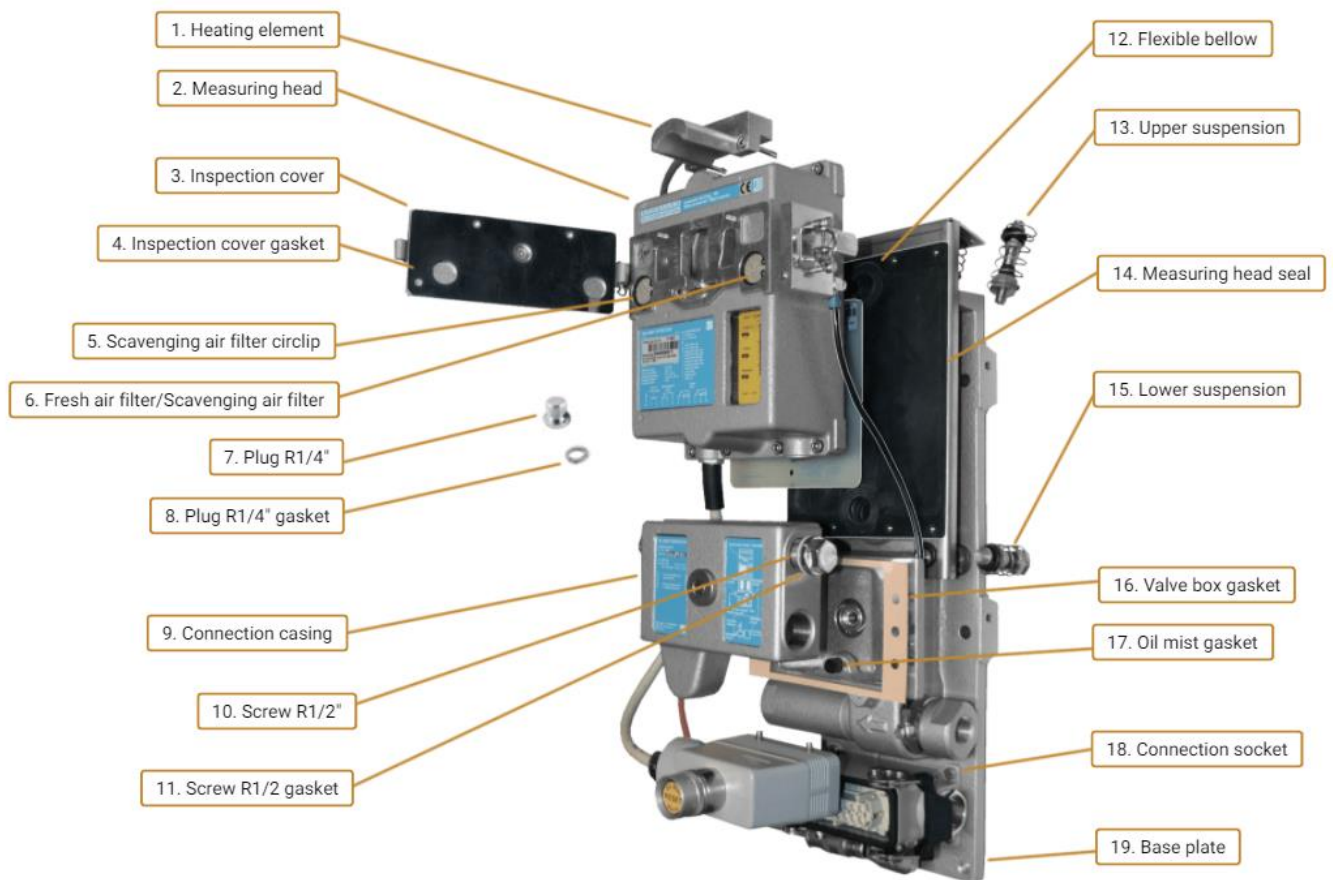
6. Connect the u-tube manometer and adjust the negative pressure to 55.00 – 65.00 mmWC!



7. Remove the quick connection, and the oil mist detector is ready for operation!



<https://www.epp.no/troubleshooting/fault-indication-vn-2020/>



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-87/>

Pos:	Part name:	Part no.:	Kit no.:
1	Heating element	10671-270765	Sold separately
2	Measuring head	10601, 10601R, 10601EXP	Sold separately
3	Inspection cover	10798-270412	Sold separately
4	Inspection cover gasket	11070-355336	100150-151483
5	Scavenging air filter circlip	10041-365198	100150-151483, 151481BU
6	Fresh air filter/Scavenging air filter	10042-365197	100150-151483, 151481BU
7	Plug R1/4"	10083	Sold separately
8	Plug R1/4" gasket	10082	Sold separately
9	Connection casing	10202-10202R	Sold separately
10	Screw R1/2"	10208	Sold separately
11	Screw R1/2" gasket	10209-365280	Sold separately
12	Flexible bellow	10023-365193	100150-151483
13	Upper suspension	10018-200211	100150-151483
14	Measuring head seal	10022-330482	100150-151483
15	Lower suspension	10019-200212	100150-151483
16	Valve box gasket	10405-330721	100150-151483
17	Oil mist gasket	10206-360136	100150-151483
18	Connection socket	10033	Sold separately
19	Base plate	10604-10604R	Sold separately

### Additional kits:

#### Cleaning kit:

- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analogue u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

#### Upgrade kit:

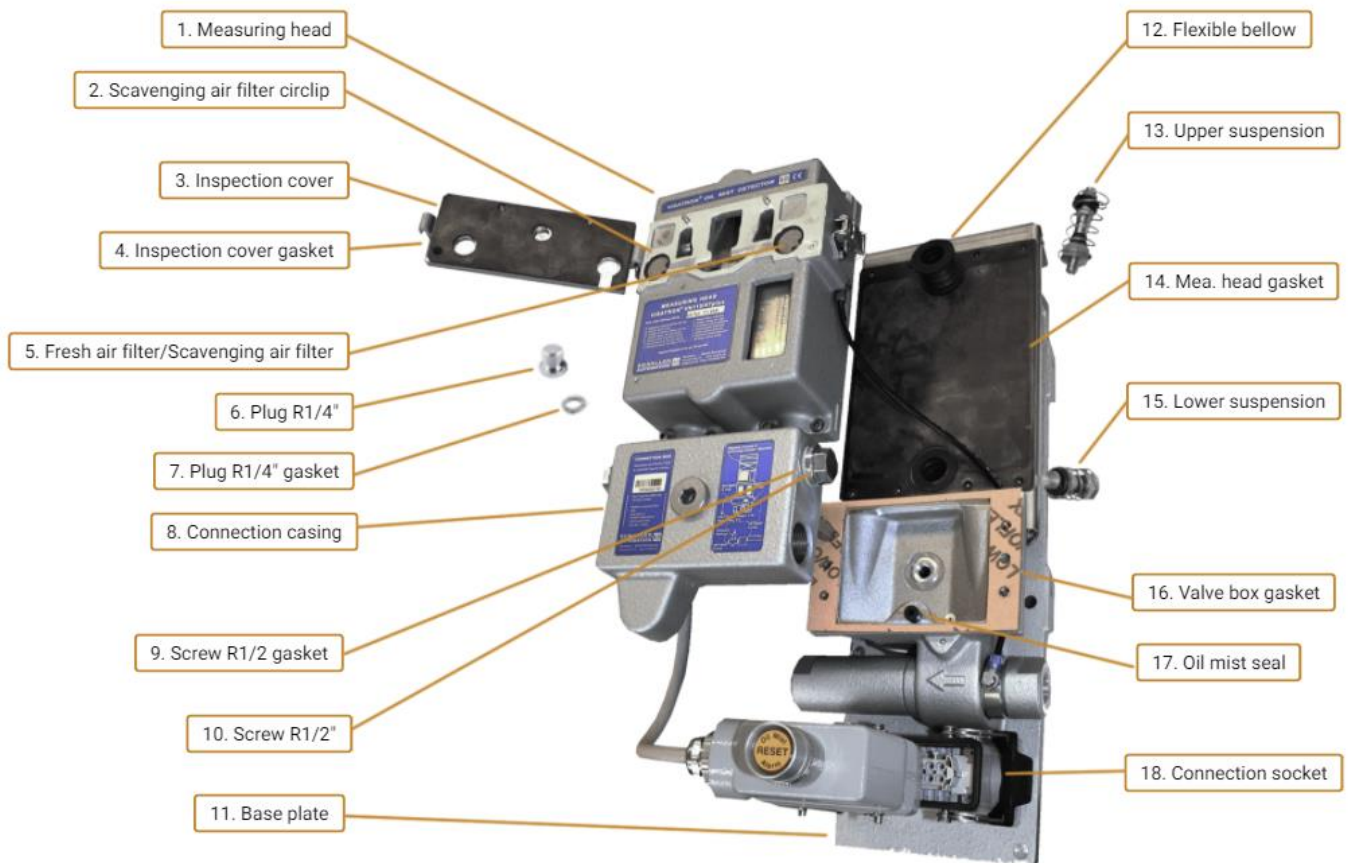
- Pressure regulator modification kit: Part no.: 273440
- Heating element for measuring head kit. Part no.: 10671
- Scavenging air set. Part no.: 10798



Yearly maintenance kit VN115/87 - 100150-151483



## Visatron VN115/87plus



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-87plus/>



Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11651, 11651R, 11651EXP	Sold separately
2	Scavenging air filter circlip	10041 - 365198	100150-151483, 151481BU
3	Inspection cover	10798 - 270412	Sold separately
4	Inspection cover gasket	11070-355336	100150-151483
5	Fresh air filter/Scavenging air filter	10042 - 365197	100150-151483, 151481BU
6	Plug R1/4"	10083	Sold separately
7	Plug R1/4" gasket	10082	Sold separately
8	Connection casing	11652 - 11652R	Sold separately
9	Screw R1/2" gasket	10209 - 365280	Sold separately
10	Screw R1/2"	10208	Sold separately
11	Base plate	10604 - 10604R	Sold separately
12	Flexible bellow	10023 - 365193	100150-151483
13	Upper suspension	10018 - 200211	100150-151483
14	Measuring head gasket	10022 - 330482	100150-151483
15	Lower suspension	10019 - 200212	100150-151483
16	Valve box gasket	10045	100150-151483
17	Oil mist gasket	10206 - 360136	100150-151483
18	Connection socket	11004	Sold separately

### Additional kits:

#### Cleaning kit:

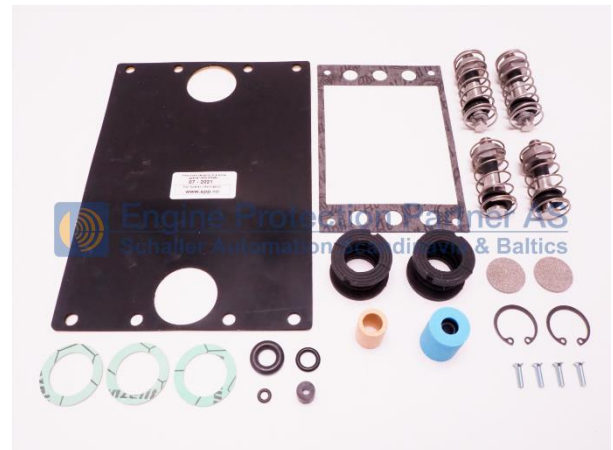
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analoge u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

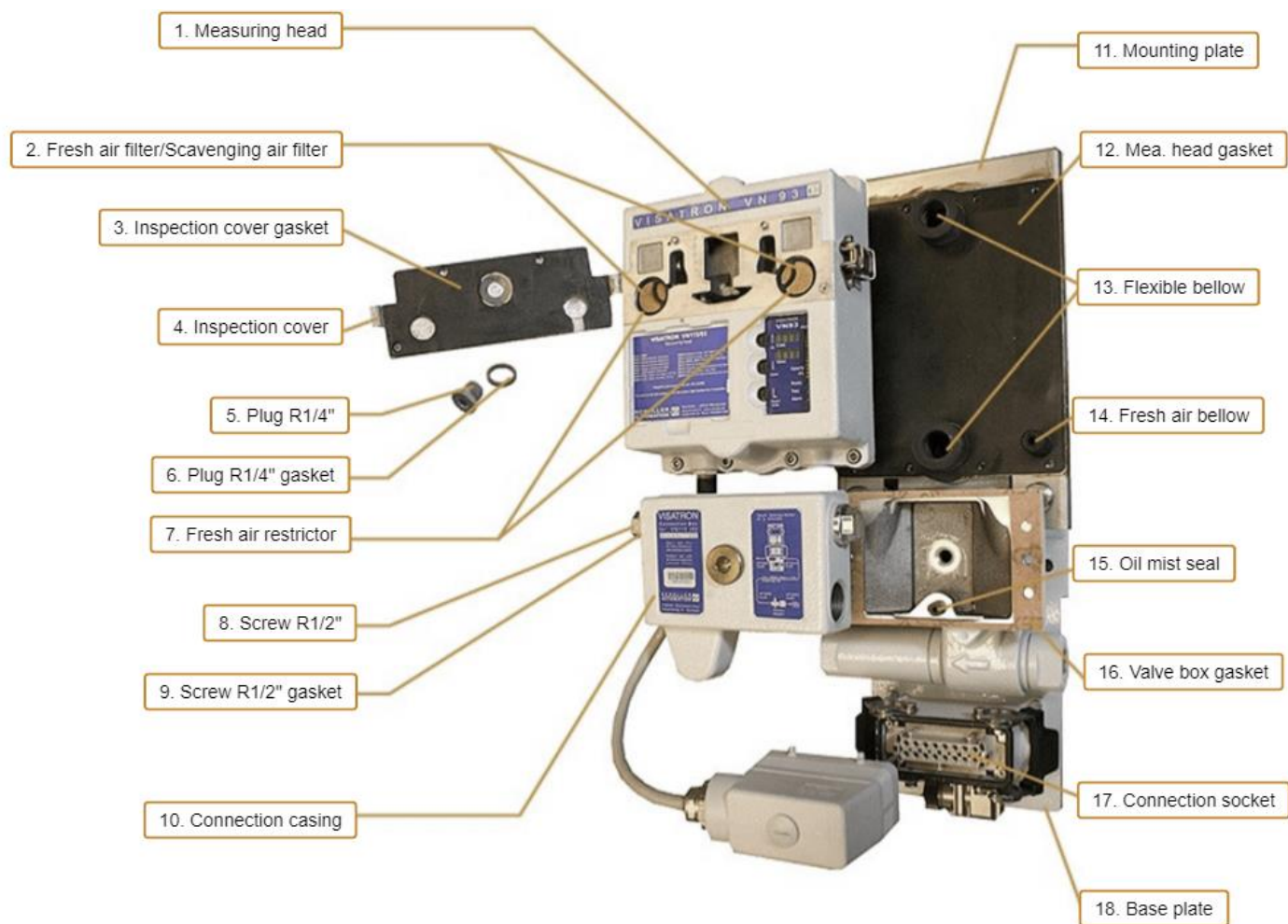
#### Upgrade kit:

- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN115/87 - 100150-151483

Visatron VN115/93



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-115-93/>

Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11201, 11201R, 11201EXP	Sold separately
2	Fresh air filter/Scavenging air filter	10042 - 365197	100153-151489, 151490BU
3	Inspection cover gasket	11180 - 355576	100153-151489
4	Inspection cover	10798 - 270412	Sold separately
5	Plug R1/4"	10083	Sold separately
6	Plug R1/4" gasket	10082	Sold separately
7	Fresh air restrictor	10992	100153-151489, 151490BU
8	Screw R1/2"	10208	Sold separately
9	Screw R1/2" gasket	10209 - 365280	Sold separately
10	Connection casing	11232 - 11232R	Sold separately
11	Mounting plate	10991	Sold separately
12	Measuring head gasket	10969 - 355321	100153-151489
13	Flexible bellow	10023 - 365193	100153-151489
14	Fresh air bellow	10990	100153-151489
15	Oil mist seal	10206 - 360136	100153-151489
16	Valve box gasket	10405 - 330721	100153-151489
17	Connection socket	10905	Sold separately
18	Base plate	10904 - 10904R	Sold separately

### Additional kits:

#### Cleaning kit:

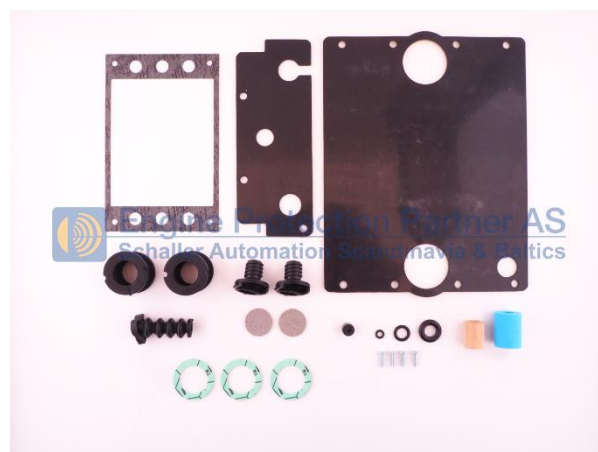
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analoge u-tube manometer kit. Part no.: 270532
- Analoge u-tube manometer kit VN/93. Part no.: 150568
- Smoke test kit. Part no.: 100167

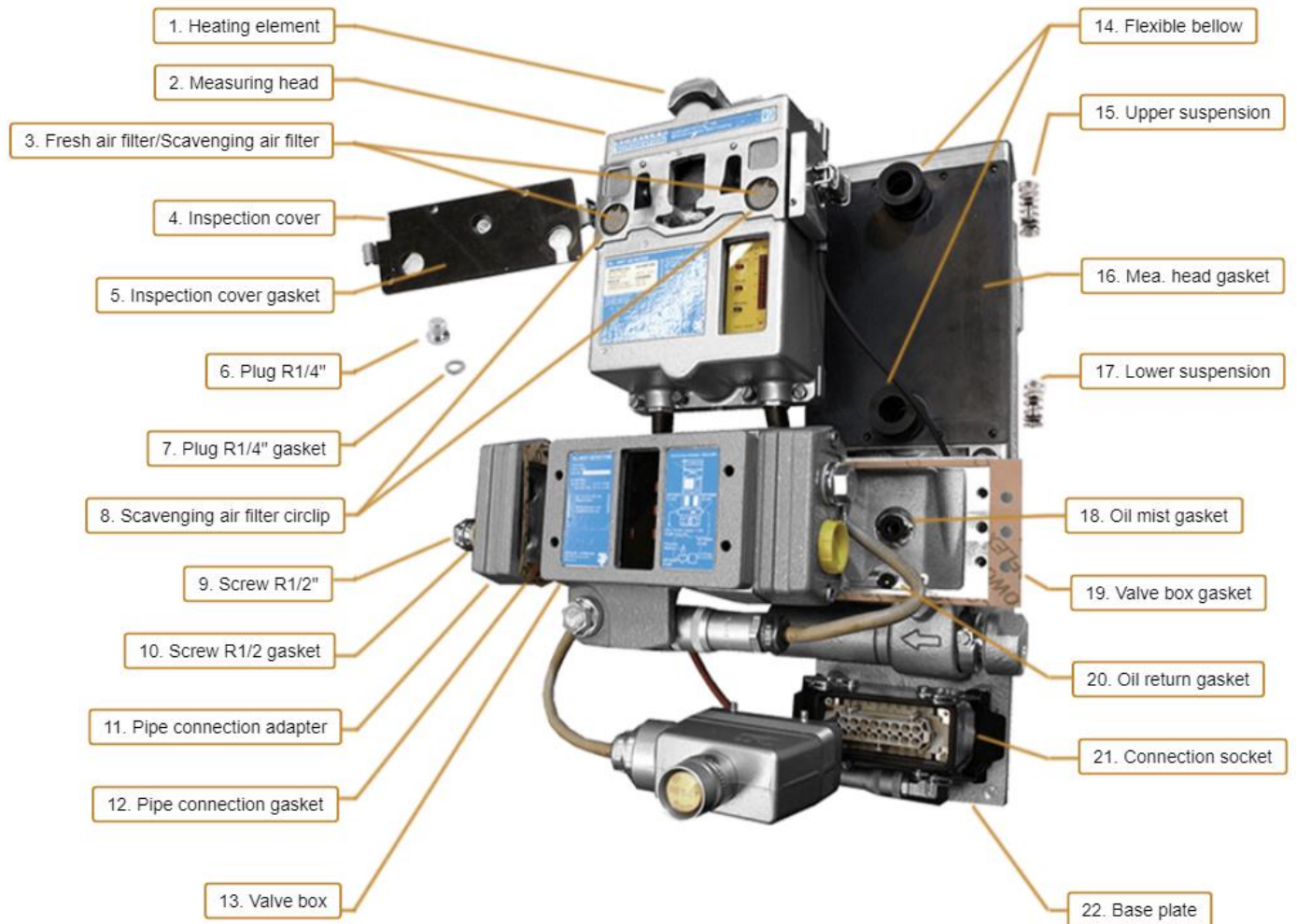
#### Upgrade kit:

- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN115/93 - 100153-151489

## Visatron VN116/87 EMC



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-87/>

Pos:	Part name:	Part no.:	Kit no.:
1	Heating element	10671 – 270765	Sold separately
2	Measuring head	10706, 10706R, 10706EXP	Sold separately
3	Fresh air filter/Scavenging air filter	10042 - 365197	100151-151484, 151481BU
4	Inspection cover	10798 - 270412	Sold separately
5	Inspection cover gasket	11070 - 355336	100151-151484
6	Plug R1/4"	10083	Sold separately
7	Plug R1/4" gasket	10082	Sold separately
8	Scavenging air filter circlip	10041 - 365198	100151-151484, 151481BU
9	Screw R1/2"	10208	Sold separately
10	Screw R1/2" gasket	10209 - 365280	Sold separately
11	Pipe connection adapter	10312	Sold separately
12	Pipe connection gasket	10313	100151-151484
13	Valve box	10302 - 10302R	Sold separately
14	Flexible bellow	10023 - 365193	100151-151484
15	Upper suspension	10018 - 200211	100151-151484
16	Measuring head gasket	10022 - 330482	100151-151484
17	Lower suspension	10019 - 200212	100151-151484
18	Oil mist gasket	10307	100151-151484
19	Valve box gasket	10405 - 330721	100151-151484
20	Oil return gasket	10306	100151-151484
21	Connection socket	10033	Sold separately
22	Base plate	10708 - 10708R	Sold separately

### Additional kits:

#### Cleaning kit:

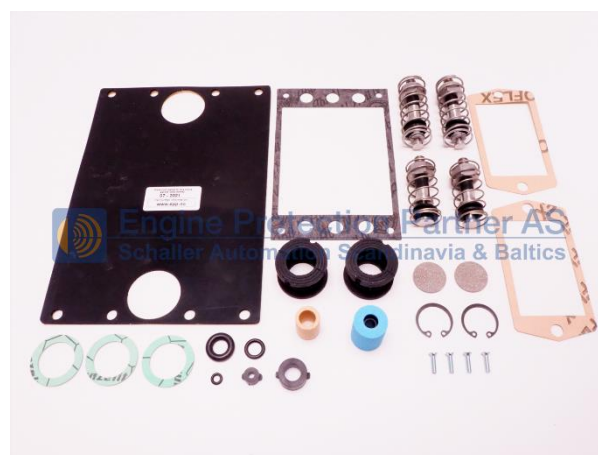
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analoge u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

#### Upgrade kit:

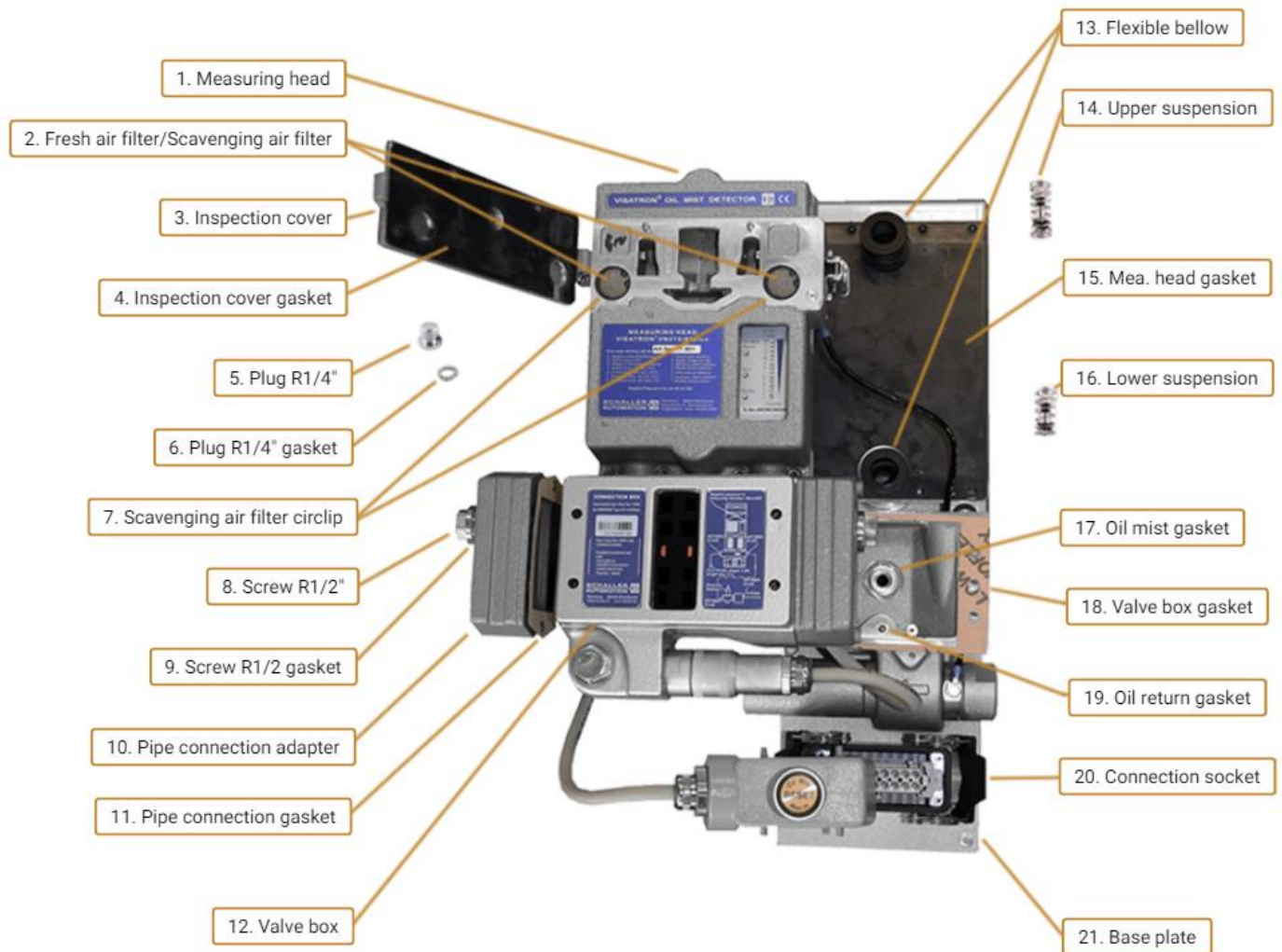
- Pressure regulator modification kit: Part no.: 273440
- Heating element for measuring head kit. Part no.: 10671
- Scavenging air set. Part no.: 10798



Yearly maintenance kit VN116/87 - 100151-151484



## Visatron VN116/87plus



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-87plus/>

Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11751, 11751R, 11751EXP	Sold separately
2	Fresh air filter/Scavenging air filter	10042 - 365197	100151-151484, 151481BU
3	Inspection cover	10798 - 270412	Sold separately
4	Inspection cover gasket	11070-355336	100151-151484
5	Plug R1/4"	10083	Sold separately
6	Plug R1/4" gasket	10082	Sold separately
7	Scavenging air filter circlip	10041 - 365198	100151-151484, 151481BU
8	Screw R1/2"	10208	Sold separately
9	Screw R1/2" gasket	10209 - 265280	Sold separately
10	Pipe connection adapter	10312	Sold separately
11	Pipe connection gasket	10313	100151-151484
12	Valve box	11752 - 11752R	Sold separately
13	Flexible bellow	10023 - 365193	100151-151484
14	Upper suspension	10018 - 200211	100151-151484
15	Measuring head gasket	10022 - 330482	100151-151484
16	Lower suspension	10019 - 200212	100151-151484
17	Oil mist gasket	10307	100151-151484
18	Valve box gasket	10405 - 330721	100151-151484
19	Oil return gasket	10306	100151-151484
20	Connection socket	11004	Sold separately
21	Base plate	11076 - 11076R	Sold separately

### Additional kits:

#### Cleaning kit:

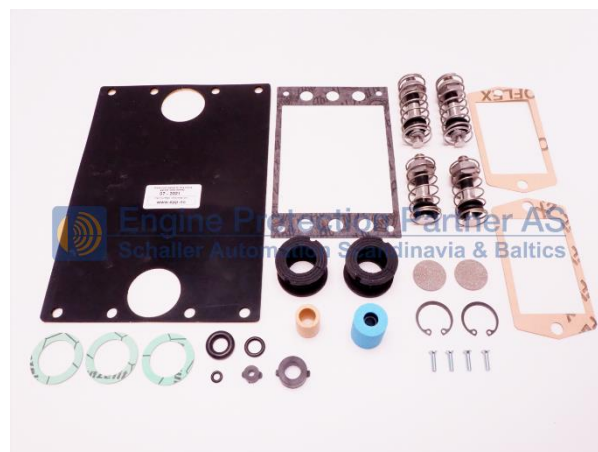
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analoge u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

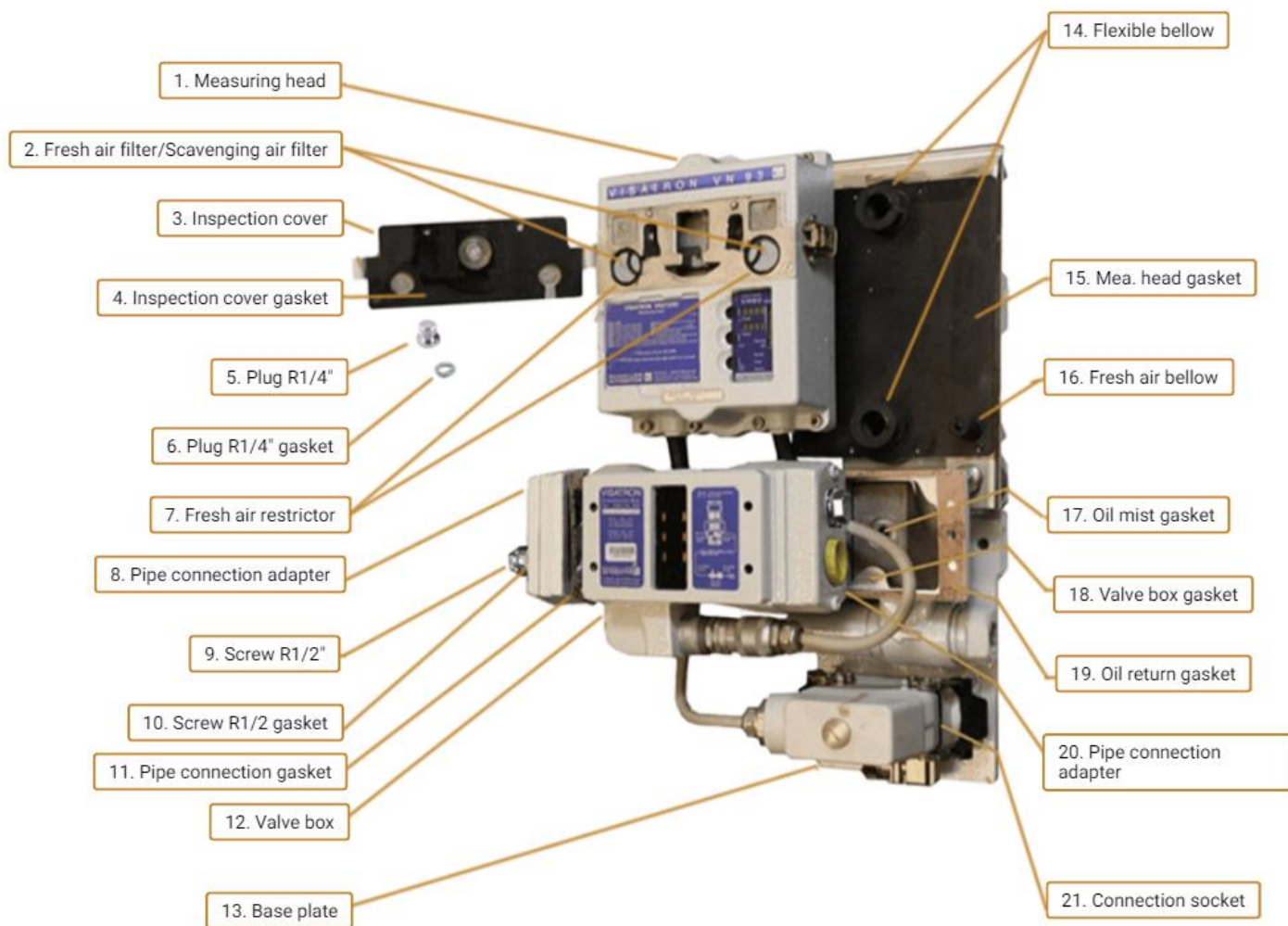
#### Upgrade kit:

- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN116/87 - 100151-151484

# Visatron VN116/93



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-116-93/>

Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11401, 11401R, 11401EXP	Sold separately
2	Fresh air filter/Scavenging air filter	10042 - 365197	100154-151487, 151490BU
3	Inspection cover	10798	Sold separately
4	Inspection cover gasket	11180	100154-151487
5	Plug R1/4"	10083	Sold separately
6	Plug R1/4" gasket	10082	Sold separately
7	Fresh air restrictor	10992	100154-151487, 151490BU
8	Pipe connection adapter		Sold separately
9	Screw R1/2"	10208	Sold separately
10	Screw R1/2" gasket	10209 - 265280	Sold separately
11	Pipe connection gasket	10313	100154-151487
12	Valve box		Sold separately
13	Base plate	10904 - 10904R	Sold separately
14	Flexible bellow	10023 - 365193	100154-151487
15	Measuring head gasket	10696	100154-151487
16	Fresh air bellow	10975	100154-151487
17	Oil mist gasket	10407	100154-151487
18	Valve box gasket	10405 - 330721	100154-151487
19	Oil return gasket	10406	100154-151487
20	Pipe connection adapter		Sold separately
21	Connection socket	10033	Sold separately

### Additional kits:

#### Cleaning kit:

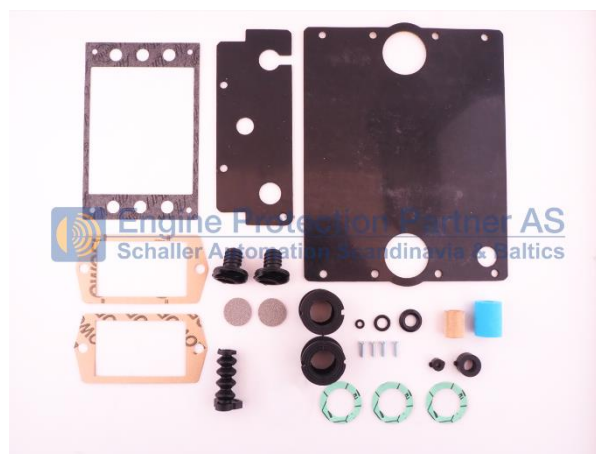
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analoge u-tube manometer kit. Part no.: 270532
- Analoge u-tube manometer kit VN/93. Part no.: 150568
- Smoke test kit. Part no.: 100167

#### Upgrade kit:

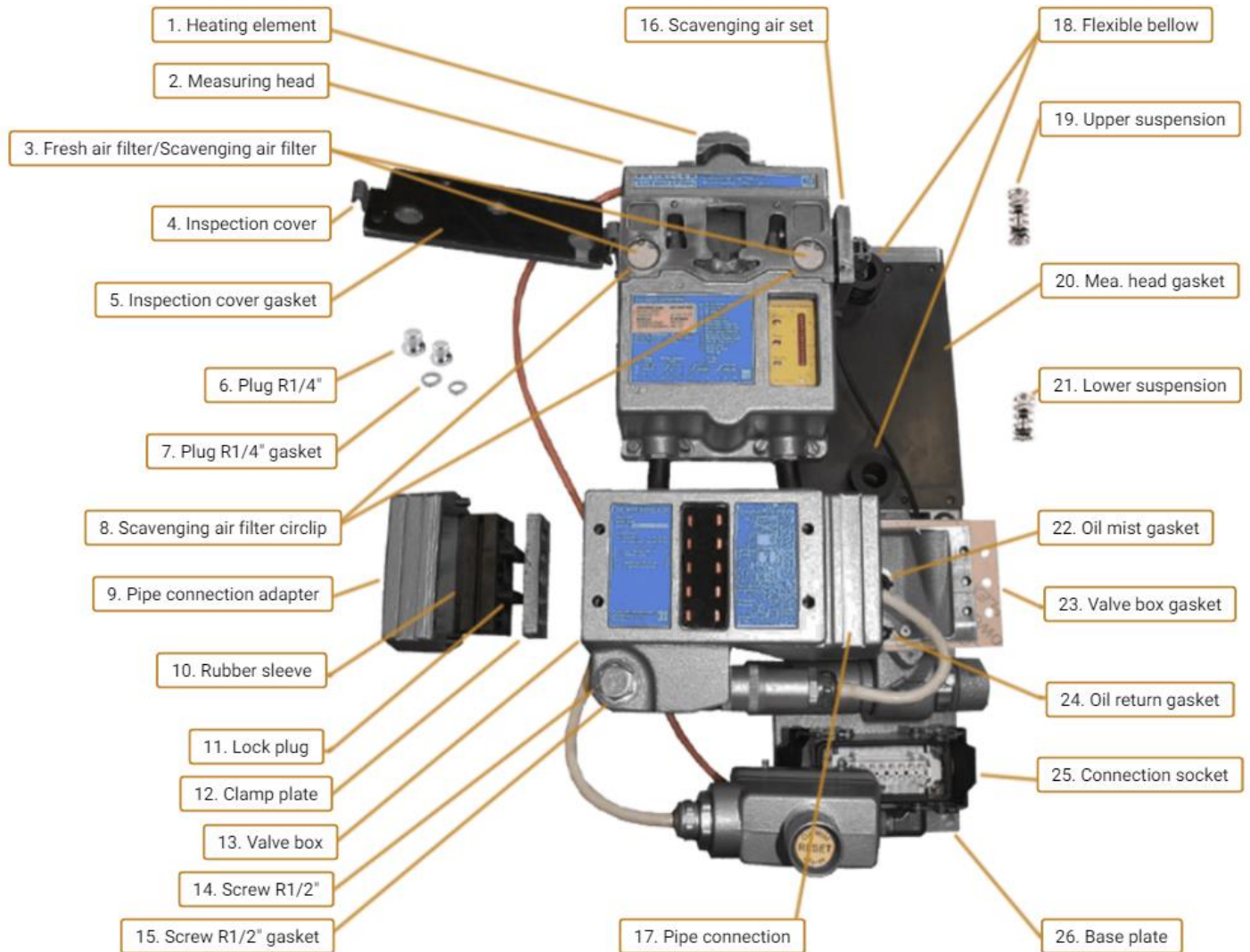
- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN116/93 - 100154-151487



## Visatron VN215/87 EMC



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-215-87/>

Pos:	Part name:	Part no.:	Kit no.:
1	Heating element	10671 - 270765	Sold separately
2	Measuring head	10801, 10801R, 10801EXP	Sold separately
3	Fresh air filter/Scavenging air filter	10042 - 365197	100152-151485, 151481BU
4	Inspection cover	10798 - 270412	Sold separately
5	Inspection cover gasket	11070-355336	100152-151485
6	Plug R1/4"	10083	Sold separately
7	Plug R1/4" gasket	10082	Sold separately
8	Scavenging air filter circlip	10041 - 365198	100152-151485, 151481BU
9	Pipe connection adapter	10430	Sold separately
10	Rubber sleeve	10411	100152-151485
11	Lock plug	10412	100152-151485
12	Clamp plate	10409	100152-151485
13	Valve box	10402 - 10402R	Sold separately
14	Screw R1/2"	10208	Sold separately
15	Screw R1/2" gasket	10209 - 365280	Sold separately
16	Scavenging air set	10798	Sold separately
17	Pipe connection	10408	Sold separately
18	Flexible bellow	10023 - 365193	100152-151485
19	Upper suspension	10018 - 200211	100152-151485
20	Measuring head gasket	10022 - 330482	100152-151485
21	Lower suspension	10019 - 200212	100152-151485
22	Oil mist gasket	10407	100152-151485
23	Valve box gasket	10405 - 330721	100152-151485
24	Oil return gasket	10406	100152-151485
25	Connection socket	10033	Sold separately
26	Base plate	10708 - 10708R	Sold separately

### Additional kits:

#### Cleaning kit:

- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analogue u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

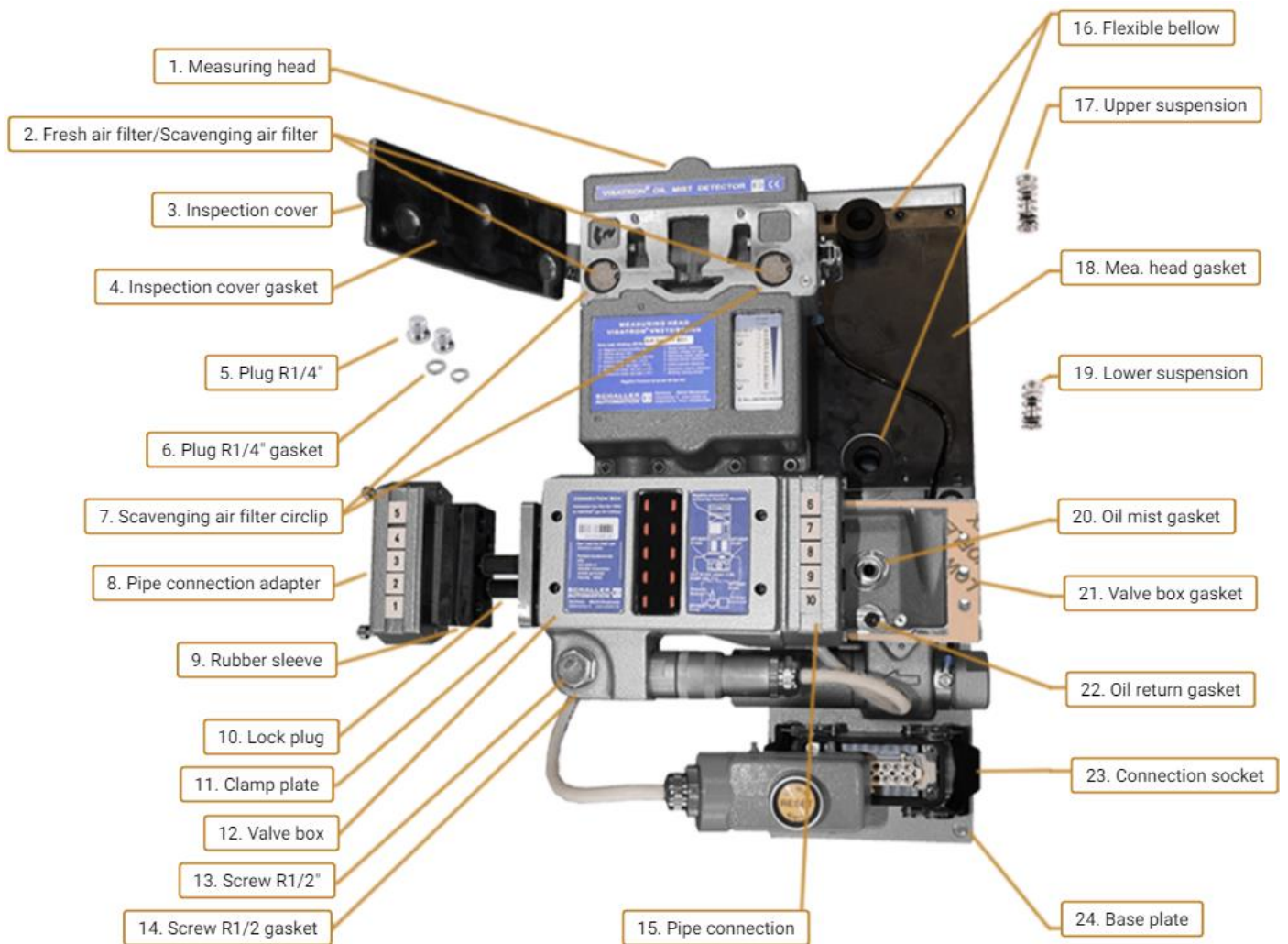
#### Upgrade kit:

- Pressure regulator modification kit: Part no.: 273440
- Heating element for measuring head kit. Part no.: 10671
- Scavenging air set. Part no.: 10798



Yearly maintenance kit VN215/87 - 100152-151485

## Visatron VN215/87plus



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-21587plus/>

Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11851, 11851R, 11851EXP	Sold separately
2	Fresh air filter/Scavenging air filter	10042 - 365197	100152-151485, 151481BU
3	Inspection cover	10798 - 270412	Sold separately
4	Inspection cover gasket	11070-355336	100152-151485
5	Plug R1/4"	10083	Sold separately
6	Plug R1/4" gasket	10082	Sold separately
7	Scavenging air filter circlip	10041 - 365198	100152-151485, 151481BU
8	Pipe connection adapter	10430	Sold separately
9	Rubber sleeve	10411	100152-151485
10	Lock plug	10412	100152-151485
11	Clamp plate	10409	100152-151485
12	Valve box	11852 - 11852R	Sold separately
13	Screw R1/2"	10208	Sold separately
14	Screw R1/2" gasket	10209 - 365280	Sold separately
15	Pipe connection	10408	Sold separately
16	Flexible bellow	10023 - 365193	100152-151485
17	Upper suspension	10018 - 200211	100152-151485
18	Measuring head gasket	10022 - 330482	100152-151485
19	Lower suspension	10019 - 200212	100152-151485
20	Oil mist gasket	10407	100152-151485
21	Valve box gasket	10405 - 330721	100152-151485
22	Oil return gasket	10406	100152-151485
23	Connection socket	11004	Sold separately
24	Base plate	11076 - 11076R	Sold separately

### Additional kits:

#### Cleaning kit:

- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analogue u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167

#### Upgrade kit:

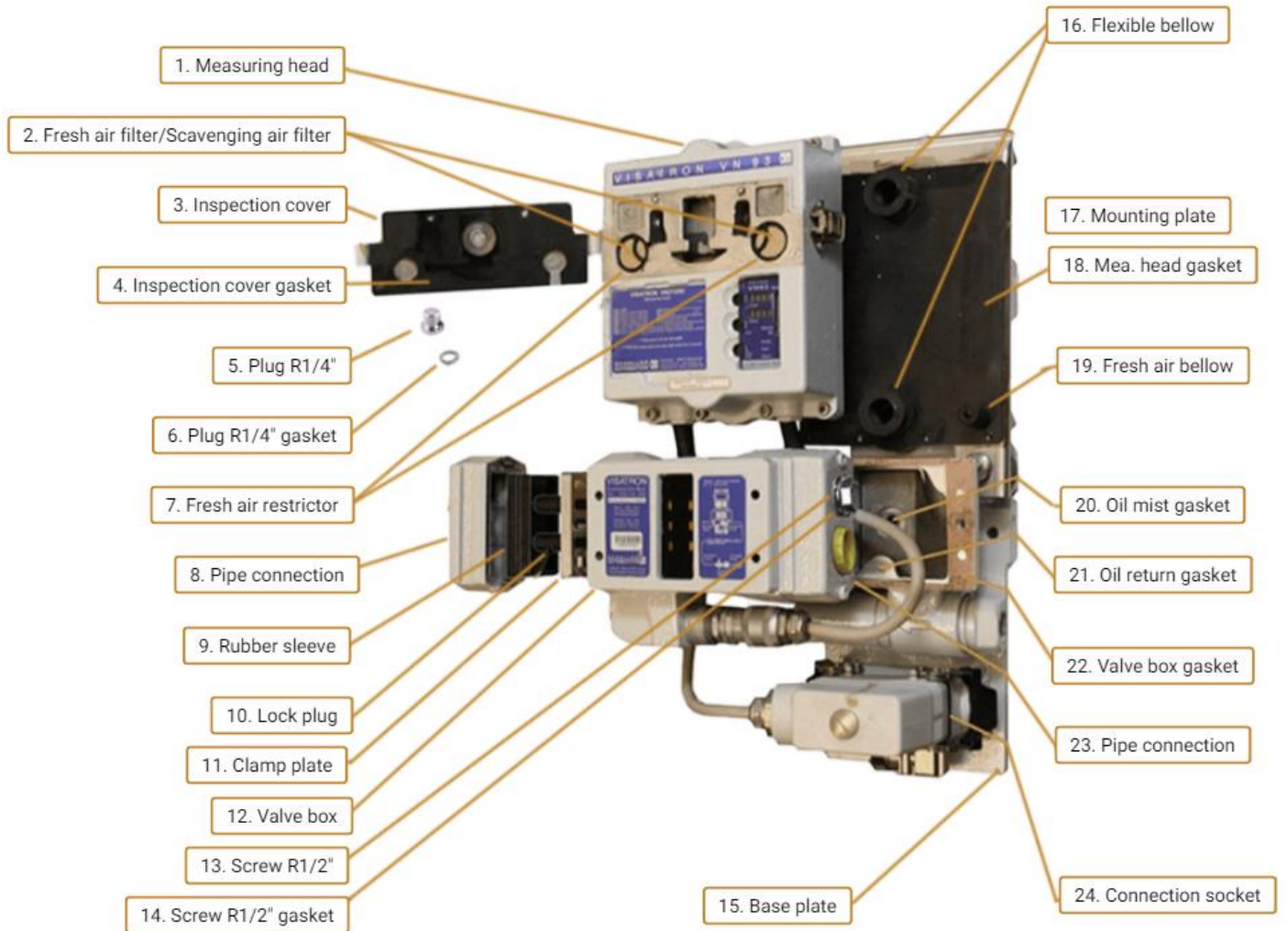
- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN215/87 - 100152-151485



Visatron VN215/93



For more information:

<https://www.epp.no/spare-parts/spare-part-for-visatron-vn-21593/>

Pos:	Part name:	Part no.:	Kit no.:
1	Measuring head	11901, 11901R, 11901EXP	Sold separately
2	Fresh air filter/Scavenging air filter	10042 - 365197	100155-151488, 151490BU
3	Inspection cover	10798	Sold separately
4	Inspection cover gasket	11180	100155-151488
5	Plug R1/4"	10083	Sold separately
6	Plug R1/4" gasket	10082	Sold separately
7	Fresh air restrictor	10992	100155-151488, 151490BU
8	Pipe connection	10430	Sold separately
9	Rubber sleeve	10411	100155-151488
10	Lock plug	10412	100155-151488
11	Clamp plate	10409	100155-151488
12	Valve box	10902 - 10902R	Sold separately
13	Screw R1/2"	10208	Sold separately
14	Screw R1/2" gasket	10209 - 365280	Sold separately
15	Base plate	10904 - 10904R	Sold separately
16	Flexible bellow	10023 - 365193	100155-151488
17	Mounting plate	10991	Sold separately
18	Measuring head gasket	10969	100155-151488
19	Fresh air bellow	10990	100155-151488
20	Oil mist gasket	10407	100155-151488
21	Oil return gasket	10406	100155-151488
22	Valve box gasket	10405 - 330721	100155-151488
23	Pipe connection	10408	Sold separately
24	Connection socket	10905	Sold separately

### Additional kits:

#### Cleaning kit:

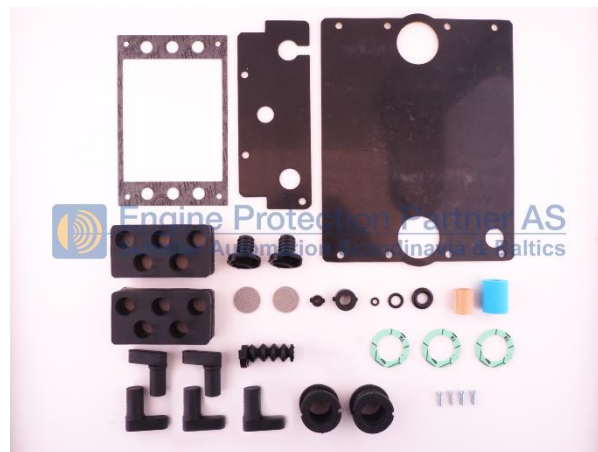
- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

- Test plate kit. Part no.: 11072
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analogue u-tube manometer kit. Part no.: 270532
- Analogue u-tube manometer kit VN/93. Part no.: 150568
- Smoke test kit. Part no.: 100167

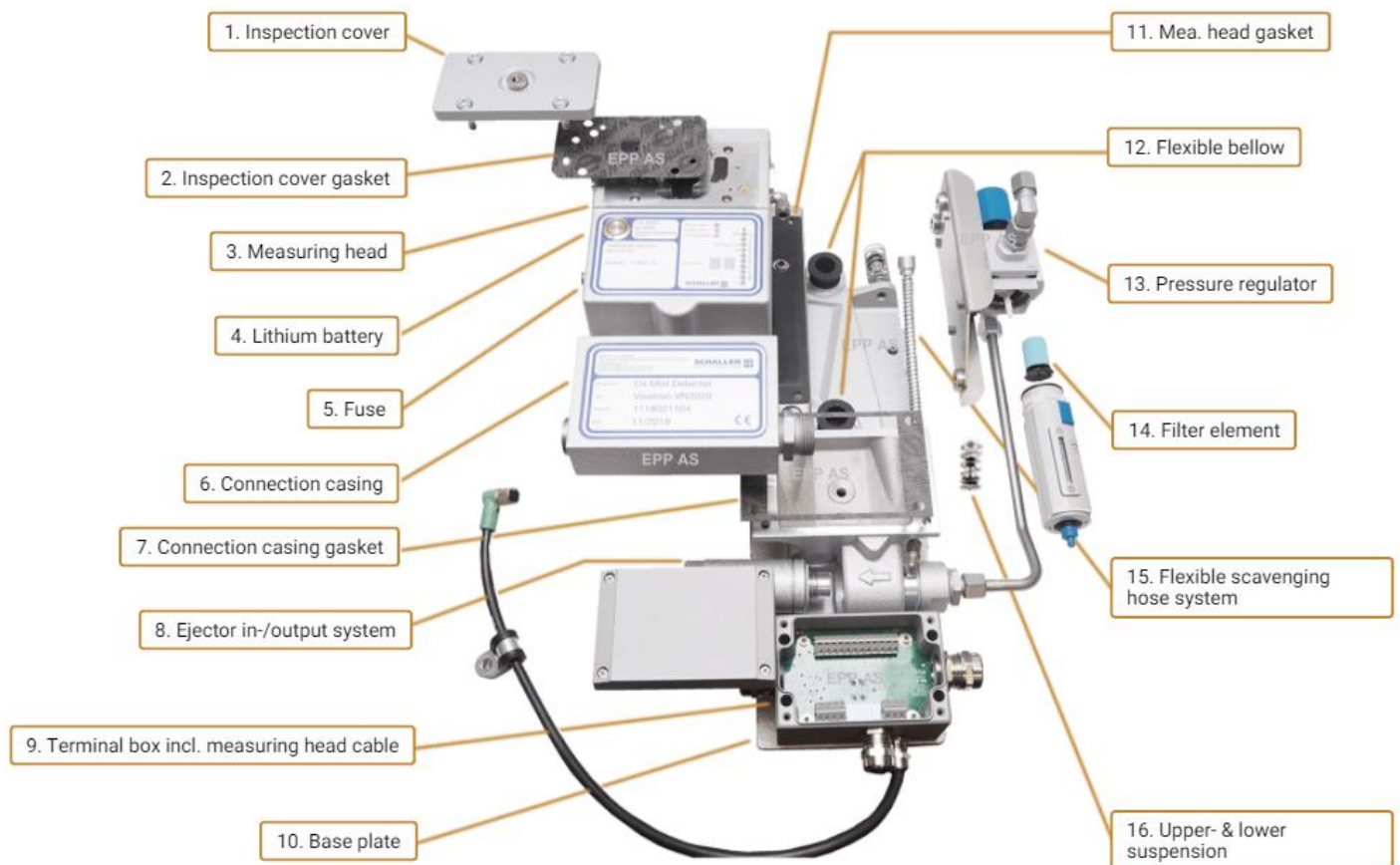
#### Upgrade kit:

- Pressure regulator modification kit: Part no.: 273440



Yearly maintenance kit VN215/93 - 100155-151488

Visatron VN2020



For more information:

<https://www.epp.no/spare-parts/spare-parts-for-vn2020/>

Pos:	Part name:	Part no.:	Kit no.:
1	Inspection cover		Sold separately
2	Inspection cover gasket		155006, 155004
3	Measuring head		Sold separately
4	Lithium battery		155004
5	Fuse		Sold separately
6	Connection casing		Sold separately
7	Connection casing gasket		155006, 155004
8	Ejector in-/output system		Sold separately
9	Terminal box incl. measuring head cable		Sold separately
10	Base plate		Sold separately
11	Measuring head gasket		155006, 155004
12	Flexible bellow		155004
13	Pressure regulator		Sold separately
14	Filter element		155006, 155004,
15	Flexible scavenging hose system		Sold separately
16	Upper- & lower suspension		155004

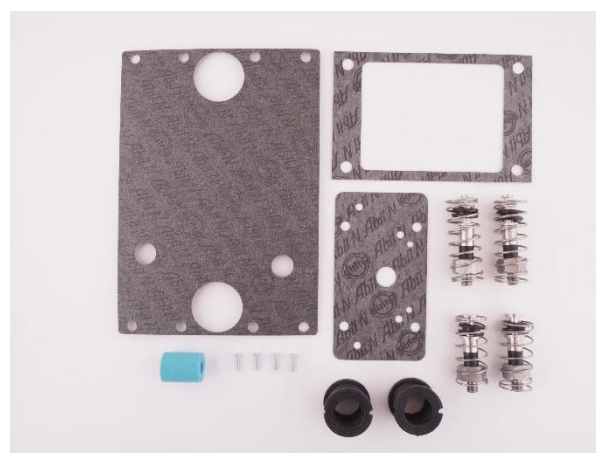
### Additional kits:

#### Cleaning kit:

- Cleaning kit. Part no.: 151482

#### Test kit for functionality test:

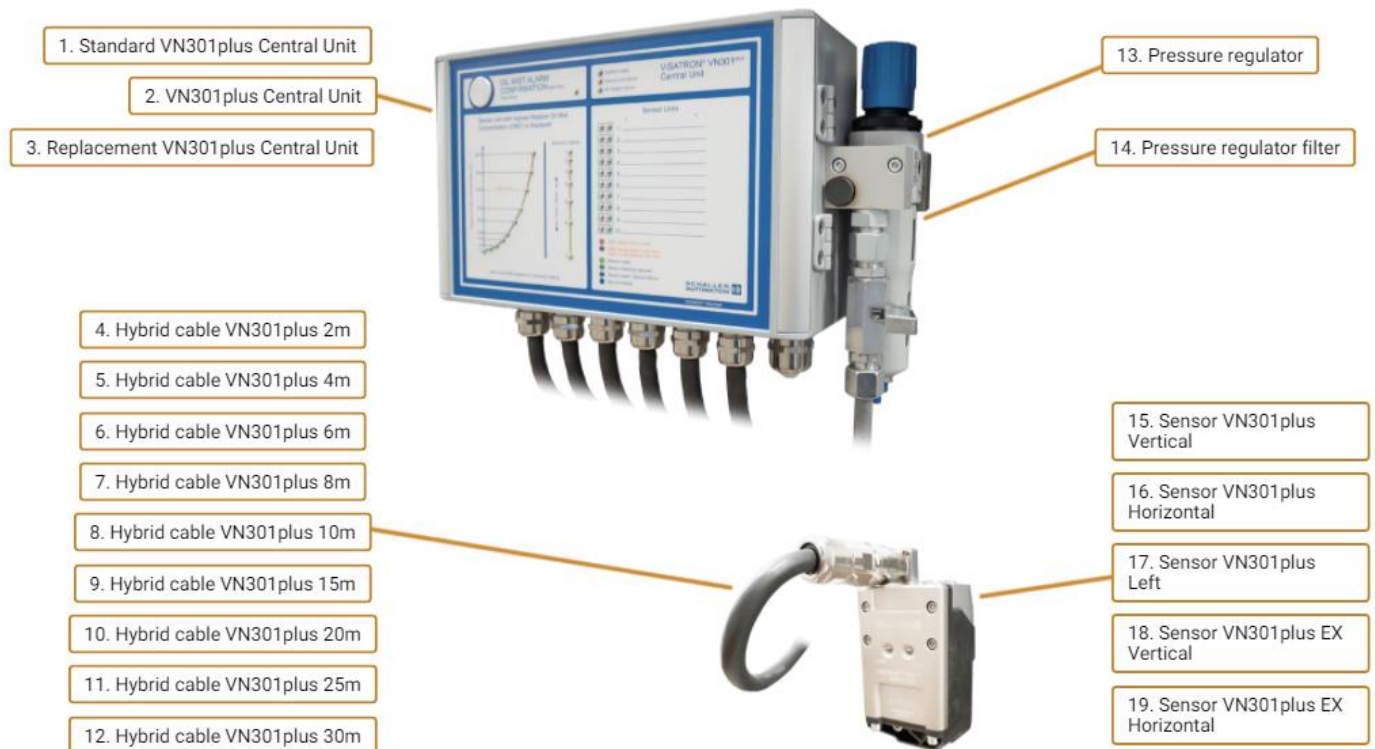
- Smoke generator. Part no.: 10353
- Digital u-tube manometer kit. Part no.: 100138-151800
- Analogue u-tube manometer kit. Part no.: 270532
- Smoke test kit. Part no.: 100167
- Test and cleaning of infrared sensor kit. Part no.: 100160-151482



VN2020 Maintenance Kit 3 – 100162-155004



## Visatron VN301plus



For more information:

<https://www.epp.no/spare-parts/spare-parts-for-visatron-vn301plus/>

<b>Pos:</b>	<b>Part name:</b>	<b>Part no.:</b>	<b>Kit no.:</b>
1	Standard VN301plus central unit	273100	Sold separately
2	VN301plus central unit	273120	Sold separately
3	Replacement VN301plus central unit	273150	Sold separately
4	Hybrid cable VN301plus 2m	273202	Sold separately
5	Hybrid cable VN301plus 4m	273204	Sold separately
6	Hybrid cable VN301plus 6m	273206	Sold separately
7	Hybrid cable VN301plus 8m	273208	Sold separately
8	Hybrid cable VN301plus 10m	273210	Sold separately
9	Hybrid cable VN301plus 15m	273215	Sold separately
10	Hybrid cable VN301plus 20m	273220	Sold separately
11	Hybrid cable VN301plus 25m	273225	Sold separately
12	Hybrid cable VN301plus 30m	273230	Sold separately
13	Pressure regulator	273102	Sold separately
14	Pressure regulator filter	273214	Sold separately
15	Sensor VN301plus vertical	153070	Sold separately
16	Sensor VN301plus horizontal	153080	Sold separately
17	Sensor VN301plus left	153024	Sold separately
18	Sensor VN301plus EX vertical	153050	Sold separately
19	Sensor VN301plus EX horizontal	153060	Sold separately

# Part Database

In the Part Database you are able to search for part and kits by both names and part numbers. We keep a complete library of the parts and kits we have been providing through the years. Every part and kit are catalogued with all specs like weight, size, material and contents, all in downloadable PDFs that you can bring with you anywhere.

We recommend using part number when you search for a part as our search-bar is very specific and some parts for different models are named the same. After inputting your search, press the search button to execute the search or press the "Enter" key. For more information about a product click on the drop-down menus and click the images in the dropdowns to download PDF versions of the documents!

## Part Database:

Here you will be able look up every oil mist detector system part we supply along with all specs of the product by searching the name or part number of the product you are interested in.



For more information and to view the Part Database:

<https://www.epp.no/databases/part-database/>



# Terminal plan

## VN/87 series

24 Volts DC	1	9		2 Lines shielded analog display
24 Volts DC GND	2	10		2 Lines shielded analog display
"Ready" relay closed	3	11		Not in use!
"Ready" relay open	4	12		Not in use!
"Ready" relay common	5	13		Not in use!
"Alarm 1" relay closed	6	14		"Alarm 2" relay closed
"Alarm 1" relay open	7	15		"Alarm 2" relay open
"Alarm 1" relay common	8	16		"Alarm 2" relay common

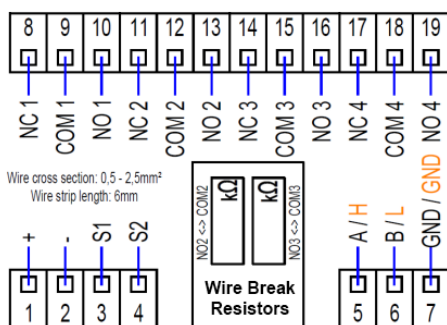
## VN/87plus series

24 Volts DC	1	9		"Pre-alarm" relay
24 Volts DC GND	2	10		"Pre-alarm" relay
"Ready" relay closed	3	11		RS485 B (opt. 4-20 mA -)
"Ready" relay open	4	12		Reserved – do not use!
"Ready" relay common	5	13		RS485 A (opt. 4-20 mA +)
"Alarm 1" relay closed	6	14		"Alarm 2" relay closed
"Alarm 1" relay open	7	15		"Alarm 2" relay open
"Alarm 1" relay common	8	16		"Alarm 2" relay common

## VN/93 series

24 Volts DC	1	9		"Pre-alarm" relay
24 Volts DC GND	2	10		"Pre-alarm" relay
"Ready" relay closed	3	11		RS485 B
"Ready" relay open	4	12		Reserved – do not use!
"Ready" relay common	5	13		RS485 A
"Alarm 1" relay closed	6	14		"Alarm 2" relay closed
"Alarm 1" relay open	7	15		"Alarm 2" relay open
"Alarm 1" relay common	8	16		"Alarm 2" relay common

## VN2020 series



24V DC	1 & 2
Spare	3 & 4
RS485	5, 6 & 7
Ready Relay	8, 9 & 10
Oil Mist Alarm Relay 1	11, 12 & 13
Oil Mist Alarm Relay 2	14, 15 & 16
Oil Mist Pre-Alarm Relay	17, 18 & 19



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## Our **Knowledge** Is Your Safety

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Author: Yngve Nilsen - CEO and founder of Engine Protection Partner AS.