

## SENSEVOLUTION OVS Online Validation System

**BAGGI SenseEvolution®** is a solution provider that designs, manufactures, installs and integrates instrumentation, analysers, sampling systems, data acquisition systems and shelters in the field of industrial processes. It combines the latest state-of-the-art-technology with over 50 years of industry experience.

The **SENSEVOLUTION OVS** is a complete system specifically designed for the online validation of the analysers installed in a fluid processing plant.

The validation is performed using a Reference Fluid certified by a Third Party. An integrated system of storage vessels, valves, actuators, pumps and sample conditioners allows to feed into the analysers either the process fluid or the reference sample to a certified desired temperature and pressure. The overall operation is controlled by an embedded computer that acts as a PLC and is also in charge of the maintenance and of providing a user friendly graphical interface.



- The computer (PLC) is skid mounted and is available in ATEX certified versions. The figure shows a model contained within a Stainless Steel 316L enclosure provided with a protective air purge system and a Vortex cooler (connected to the plant instrument air). Magnetic push buttons allow controlling the system without opening the cabinet. The application software package is developed by BAGGI® according to the Customer's specific needs.

The computer/PLC can be remotely operated and it is connected to higher level nodes (as a DCS) by a variety of protocols: Modbus, Profibus, FieldbusFoundation over RS-232/RS-422/RS-485 and Ethernet; WiFi connectivity is available.

The interfaces towards the sensors/actuators include 4-20 mA current loops and relay signals.

- The vessels for storing the certified validation fluid are manufactured by BAGGI® with the provision of the level, temperature and pressure sensors. Their output signals are routed to the PLC skid.

When needed, the vessels are cooled and thermally insulated. Cooling could be needed to reduce the vapor pressure and chemical decomposition or degradation. An optional stirrer is available.

The standard material is 316L stainless steel.

Custom products are designed and manufactured as per ASME Section VIII, Division 1, Current Edition.

Certification: "U Stamp" for pressure vessels and "UM Stamp" for miniature pressure vessels. Others available on request.



- A sample conditioning system is necessary because it is important to present the validation sample to the analyser in as close an identical condition as the process sample or in a certified fixed condition as per Customer's requirements. This means flowing at the same flow rate, pressure, temperature so that the analyser sees no change with respect to the normal process sample.



Therefore the analyser will report the chemical change only.

The sample conditioning systems can be designed for use in ATEX environments.

In this case all the actuators (inclusive of the pumps) are pneumatically operated

The lines can be heated/cooled and provided with absolute filters, coalescent filters, bubblers and pressure regulators.

As a very important feature, cleaning circuitry is provided (under the control of the PLC) for washing the lines and avoiding any cross-contamination between the validation and the process samples.

The validation fluid vessel is connected to the analyser under test through the Sample Conditioning System (SCS). A removable cartridge allows to take away a portion of the sample for laboratory analysis.

The overall validation algorithm can be performed either by the skid mounted PLC or by an external DCS, according to the Customer's requirements.

Using the **BAGGI SenseEvolution®** solutions gives a series of advantages, because they are accompanied by a full list of capabilities:

- Site supervision by qualified personnel
- Design team made by mechanical, chemical, electrical and electronics engineers
- Control system PLC/DCS engineers
- Calculation and logistics software
- Monitoring and control systems for industrial plants
- Quality experts
- Capability of manufacturing vessels/tanks of any type
- Non-destructive examinations
- Qualification of Welds and Welders
- ATEX certifications
- Pre and Post sales technical assistance
- Remote technical support
- Installation, Commissioning and Start-up
- Technical and Safety documentation
- Training courses

