

BAGGI BA-SICE Online Salt In Crude Analyzer (Extraction measurement cell)



The BAGGI BA-SICE is part of the **BAGGI SENSEvolution Instruments Series**. They are the result of combining the latest state-of-the-art-technology with over 50 years of industry experience.

The BA-SICE is an online process analyzer for continuous, reliable and accurate measurement of the concentration of salt in crude oil. It is available for operation in an explosive atmosphere environment. A sample of the oil is extracted from the process and is introduced into a measurement chamber.

There are crude oils with high levels of chloride (salt) concentration. These oils must be transported and refined, while the high salt concentration can originate problems if it is neglected. To use effectively the desalters, it is necessary a quick and accurate measurement of the concentration. This goal can be achieved by the immediate response of an on-line process analyzer.

The offered instrument is based upon the ASTM Method D 3230. This is achieved by using a digitally controlled syringe sample managing system, micro

volume solenoid valves and a measurement chamber with a high resolution conductivity probe.

At the beginning of each measurement cycle, the chamber is emptied by using the purge gas and is cleaned with Naphtha.

Then a solenoid is actuated bringing a precise quantity of crude oil into the measurement cell. By a digitally controlled syringe, a precise quantity of Xylene is added into the cell. Finally a precise volume of Alcohol is pushed into the cell.

A stirrer is activated for the duration of the cycle, for shortening the analysis time. The temperature of the cell is held at a fixed level (between 45°C and 50 °C). Once stabilized, the electrical conductivity measurement is made and the Salt concentration is calculated.

At the end, the sample is flushed from the cell and a rinse cycle is performed to clean it.

The overall duration of the analysis cycle is 6 minutes

The controller tracks continuously the temperature and conductivity values during the cycle and therefore is able to check for the presence of malfunctions. An advanced diagnostic tool is available.

An optional grab sample system can be added. This allows either to introduce a reference solution or an unknown sample for immediate analysis. This facility provides a simple system verification or a convenient analysis of a non-automated sample stream.

As outlined, the analyzer is delivered for operation in hazardous locations, where flammable gases or vapors may be present in the air in sufficient quantities to be explosive or ignitable.

The area classification is the following:

NEC Class 1 Div 1 Group B, C + D

Specifications	
Salinity range	User selectable: 0 to 400 PTB (Pounds per Thousand Barrels) 0 to 1000 mg/liter
Salinity accuracy	+/- 5% of measurement Correlates to ASTM D 3230
Conductivity accuracy	0.5% of full scale
Measurement cycle time	6 minutes
Sample temperature	Min. 50°F (10°C) – Max. 140°F (60°C)
Sample pressure	Min. 60 psi (4.0 bar) ÷ Max. 210 psi (14.0 bar) Optional sample conditioning system
Sample bypass flow rate	2.0 liter/min
Sample Conditions	Single phase sample without water
Solvent requirement	- Xylene per ASTM D843 - Alcohol Mixture 37/63 mix of Absolute Methanol and n-Butanol(reagent grade)
Operating temperature	Min. 40°F (5°C) – Max. 105°F (40°C)
Dimensions	Width 38.0 in (955mm) – Height 73.0 in (1854mm) – Depth 30 in (762mm)
Weight	approximately 500 lbs (228 kg)
Power	auto-selecting 100 to 120 VAC or 200 to 240 VAC (± 10%), 50/60 Hz, single phase, 5A
Cell Purge Gas Supply	Clean, Dry Instrument air at Min. 20 psi (1.4 bar) – Max. 35 psi (2.4 bar) / approx. 20 ccm/min flow rate at 20% duty cycle
Optional Vortex Gas Supply	Clean, Dry Instrument air at Min. 80 psi (5.5 bar) – Max. 120 psi (8.2 bar)
Area Classification	NEC Class 1 Div 1 Group B, C + D
Analog Output Signal	single isolated 4-20 mA output (optional second output available), selectable for sample SIC values, analyzer system/maintenance warning or analysis measurement indication
Relay Output Contact	three SPDT Relays with contacts rated at 3A resistive load at 250VAC ,selectable for sample SIC value alarm, analyzer maintenance warning or analyzer fault alarm
Serial Input/Output Signal	single RS232 or RS485 bi-directional / optional ModBus output available

All the specifications subject to change without notice

For specific requirements, please contact the e-mail address below:

baggi@baggi.com