

Model 1150 Staticon® Conductivity Monitoring & Control System

In-Line Monitoring and Controlling of Electrical Conductivity of Fuels (ASTM D2624)

To reduce the hazards of electrical charge build up that can occur especially during high pumping rates of low conductivity materials through filters, additives are added to the product. Emcee Electronics, Inc. offers the Model 1150 Staticon® System (listed in ASTM D 2624) that has the capability to monitor and control conductivity of such products in a moving stream. The System can control the additive injection rate to maintain a pre-set level of conductivity and has the ability to turn off the main pumps when either a high or low pre-set limit has been exceeded. The basic system consists of Control, Barrier and Fuel Cell Modules; an optional injector pump is offered. Intrinsically safe approvals have been received from the applicable domestic and foreign agencies, such as Underwriters Laboratories (UL), KEMA (Registered Quality) and the Canadian Standards Association (CSA).

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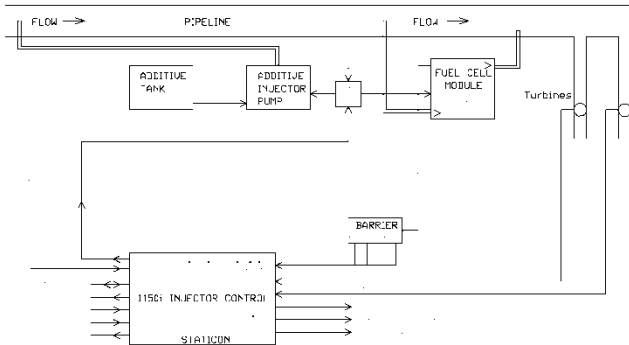


Figure 1 – System Block Diagram

A typical installation is shown in Figure 1, with a pipeline feeding two tanker (road/rail) filling stations.

The requested conductivity level and limits are set in the Control Module (Figure 2). The test cell in the Fuel Cell Module generates conductivity and temperature data that is passed through the Barrier Module to the Console Module where it is processed utilising a microprocessor, stored, and displayed. The data is also used to control the additive injection rate to maintain the requested conductivity level. The injection rate varies to compensate for variations in additive strength and temperature. The Console Module, as shown, can handle 2 streams by adding an additional Fuel Cell Module and barriers to the existing Barrier Module.



Figure 2 - Console Module

The Fuel Cell Module (Figure 3) houses the test cell and an explosion proof pump. The product is extracted from the pipeline, passes through the test cell at a

constant flow rate that is maintained by the pump, and is reintroduced downstream into the pipeline.



Figure 3 - Fuel Cell & Barrier Modules

The Barrier Module (Figure 3, on left) provides the intrinsic safety provisions to prevent high voltages from reaching the test cell in the Fuel Module.

Significant savings can be made on the volume of additive injected into the process streams. Data generated by installed systems has shown that savings in excess of 10 to 15 per cent can be easily achieved.

Specifications

Measurement range	0-1000pSm ⁻¹
Accuracy	±2% of full scale (Reproducibility and Repeatability to ASTM D2624)
Required Sample volume	0.3-1.0l/min
Working Pressure	1000kPa min (10bar/150psi) with a 5:1 safety factor
Proof Pressure	5000kPa min (50bar/750psi)
Certification	Eex ia IIA T4, Intrinsically Safe
Power requirements	115/230Vac, 50/60Hz

Inputs/Outputs

Turbine data input	Square-wave, Current/ Voltage
Conductivity, Temperature	4-20mA outputs
Side-stream pump control	On/Off
Injector output control	Current/Voltage pulse
Alarm	On/Off

