

# Automatic SDI Monitor

Complies with ASTM D4189-95

Applied Membranes now offers a cost-effective, automatic SDI monitoring system.



## The Automatic SDI Monitor

- Fully automatic
- Designed for on-line operation
- Fast and easy filter media replacement
- Uses standard filter media

Monitoring the fouling tendency of RO feedwater has long been a challenge. Usually fouling is not noticed until the RO membranes need cleaning, resulting in expensive downtime or, worse yet, membrane replacement.

Numerous methods have been used to measure the fouling tendency of feed waters, including turbidity, particle counting, and manual silt density index (SDI) testing. It is difficult to correlate turbidity and particle counting to membrane

fouling since they do not directly measure the fouling or "plugging" nature of the particles in suspension. Since the manual SDI test measures this plugging tendency, it has proven useful in indicating fouling tendencies. However, the manual SDI testing method is tedious and time-consuming.

The Automatic SDI Monitor automatically and consistently monitors

the silt density index of RO feed water. Operators can quickly and regularly check the effectiveness of the RO pre-treatment system without bothering with labor-intensive manual tests.

It is easy to install, easy to operate, and sells for a fraction of the cost of other automatic SDI testing equipment.

## Operation

The Automatic SDI Monitor is microprocessor controlled and fully automatic. The monitor is housed in a NEMA 4X enclosure and is designed for permanent installation in industrial environments. The filter holder allows the use of standard 25mm test filters available from a number of suppliers. Replacing the media is a two-minute process and the test is initiated with the press of a button.

A blinking indicator notifies the operator of the completion of the test. The SDI results may then be read from the LCD display. The display is equipped with an LED backlight making it easy to see the results in any environment.

The test pressure is controlled with a high-quality internal pressure regulator which can accommodate inlet pressures above 1000 psi. This allows the sample to be taken from the high pressure side of the RO feed pump thus eliminating cumbersome and expensive sample boost pumps. The test pressure is constantly displayed on the LCD and the monitor alarms and aborts the test if the pressure falls outside of ASTM specifications.



**The Automatic SDI Monitor is available in a four-test version, allowing four separate SDI tests before replacing filters.**

Tests may be activated:

- Manually from keypad
- Time interval
- External trigger (dry contact)

## Principle

The Automatic SDI Monitor uses the same testing method as specified in ASTM D 4189-95. This standard method indicates the quantity of particulate matter in water and is applicable to relatively low (<1.0 NTU) turbidity waters such as well water, filtered water, or clarified effluent samples. Since the size, shape, and nature of particulates may vary, this test method is not an absolute measurement of the quantity of particulate in a particular water source. Maximum SDI values of RO feed water are commonly specified by RO membrane manufacturers, and demonstrating adherence to these SDI specifications may be necessary to receive guaranteed performance from the membrane supplier.

As specified in the ASTM method, the Automatic SDI Monitor calculates SDI at five-, ten-, and fifteen-minute intervals. The monitor examines the temperature of the feed water and displays the change in temperature during the test.

## Unique Features

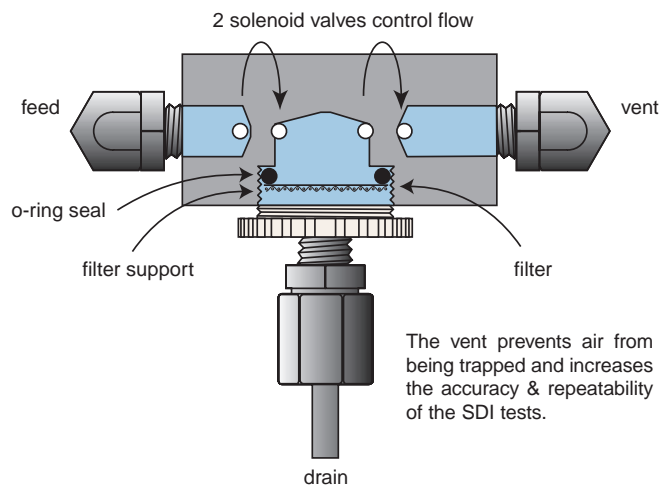
The Automatic SDI Monitor incorporates a number of unique features which ensure reliable operation and dependable results.

**Continuous Sample Flow** - The Automatic SDI Monitor is designed for permanent installation. In order to prevent stagnant conditions in the sample line, the monitor continuously allows a side stream of sample to flow through the monitor up to the point where the sample enters the filter. A specially designed orifice controls the rate of this side-stream flow. The orientation of the flow control orifice also allows air in the sample line to be separated from the sample before the sample enters the filter holder.



The Automatic SDI Monitor uses standard filter media, either flat discs or disposable cartridges (the SDI-4 uses disposable cartridges only, ABOVE).

**Air Venting** - The unique design of the filter holder allows air to be vented from the filter chamber before the beginning of each test. This, together with precise volume measurement, ensures that the repeatability of SDI values from the monitor far exceeds that of the manual test.



## Physical and Mounting Characteristics

### Dimensions

SDI-1	15" wide x 11" high x 9" deep
SDI-4	22.5" wide x 11" high x 9" deep

### Weight

13 lbs EZ SDI-1 / 18lbs SDI-4

### Power

120-240 VAC, 50-60 Hz, 0.8 Amps

### Environment

0-50°C 10-90% RH (non condensing), NEMA 4X

### Connections

Sample – 1/4" nylon or ss tubing  
Drain – Open

### Sample Condition

70 to 1200 psi, 5-50 °C  
1000 ml/min minimum

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