



**Gravity Filter Backwash Monitor**

# Target Savings & Filter Health

See Into Your Backwash Process Like Never Before



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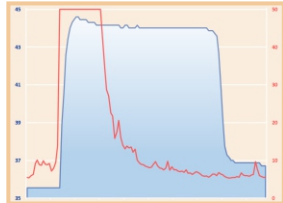
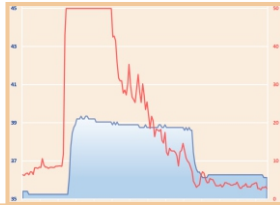
## What is FilterSmart?

Until now, operators have had to rely on two *surrogate* measurements to manage the backwash process: flow rate and time. *FilterSmart directly measures* the parameters of actual interest: media expansion and turbidity. These two trends together present a clear picture of what's going on during the backwash, allowing operators to "see" into the process like never before. FilterSmart simplifies filter optimization because its 24/7 monitoring takes the place of countless man hours of data collection.

## Simple Ways to Use FilterSmart

### Ensure Proper Media Expansion

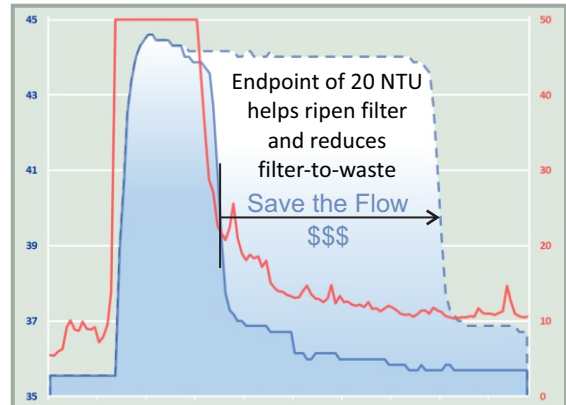
Insufficient expansion leads to short filter runs, mud ball formation, and poor long-term filter health.



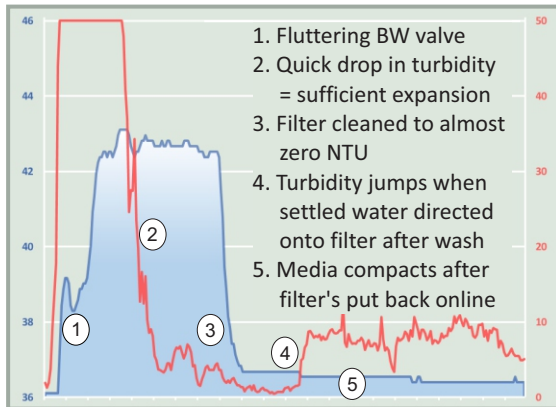
Simply increase backwash flow rate until FilterSmart shows desired expansion - typically 25-30%.\*

\* Consult manufacturer for filter's specified rate of expansion.

### Terminate Wash Using Turbidity

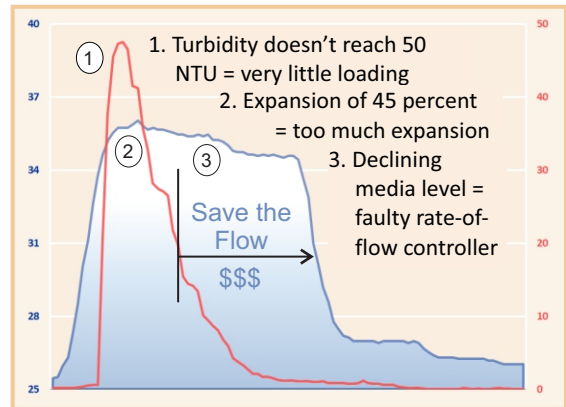


### See Critical Backwash Elements



— Media Level  
— Turbidity

### Decrease Backwash Frequency



## Use FilterSmart To:

### See How to Optimize Backwashes

- Ensure proper media expansion
- Eliminate media loss due to over-expansion
- Easily adjust flow rates for seasonal water temperature changes
- Determine proper air scour duration and flow rate

### See How to Save Money and Water

- Easily determine when to terminate the wash by establishing the proper turbidity endpoint
- Reduce wash water volumes and backwash duration
- Help lengthen filter run times
- Shorten filter ripening time
- Easily implement ETSW

### See Hidden Problems

- Eliminate mud ball formation
- Show the presence of leaking, fluttering, or stuck valves and rate-of-flow controllers
- Indicate when pumps aren't performing correctly
- Help determine root cause of unexplained events during failures

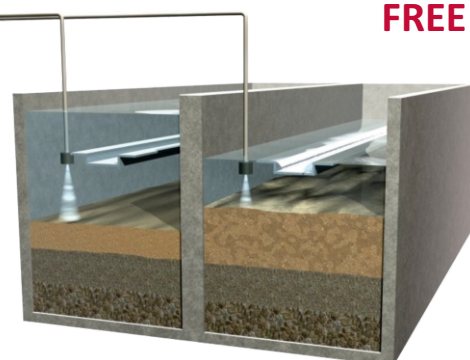
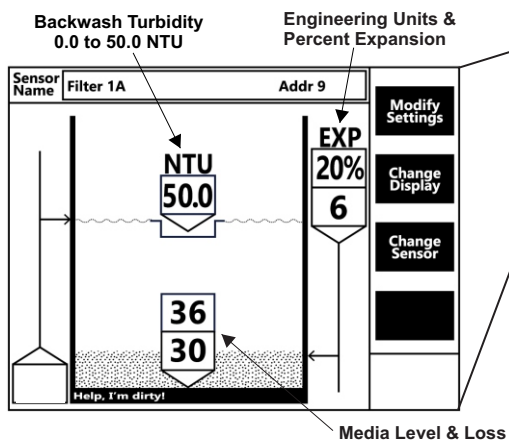
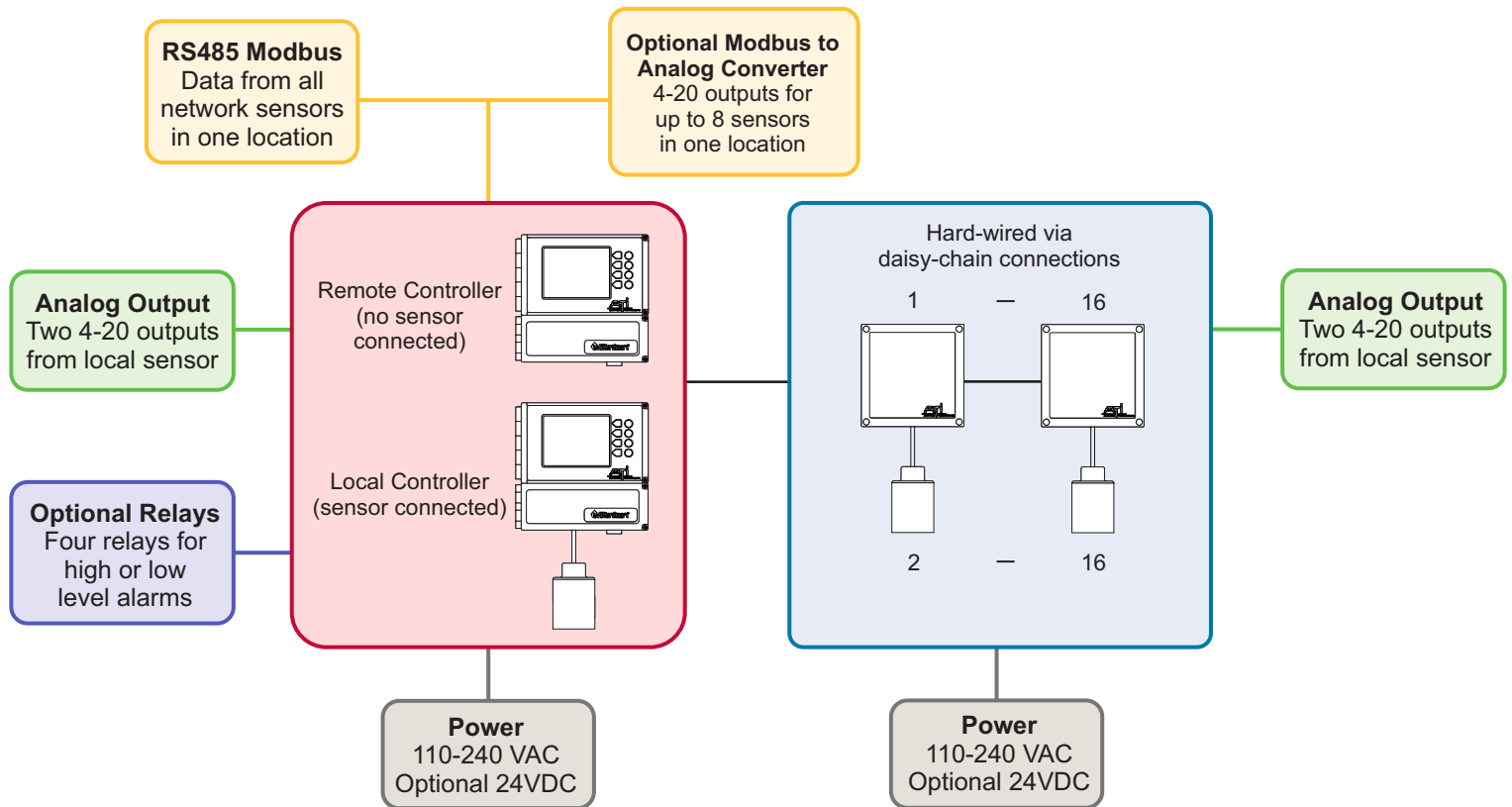
## Highly Repeatable Turbidity Trends

Designed specifically for backwash monitoring in a non-compliance area, the turbidity sensor is made from durable components that produce years of highly repeatable trends without the need for field calibration or intervention.

The data at right is from a live, side-by-side comparison conducted by a surface water treatment plant in California. FilterSmart performed just as well as the competitor's backwash turbidity sensor priced 15 times higher! Now that's FilterSmart!



## Networking & Available Outputs



Ask today about a 30-day  
**FREE DEMO!**

## Smart Sensors

### Media Level & Expansion

Measurement Principle  
Underwater acoustic

Range  
1.0 to 20 ft. (0.305 to 6.1 m)

Sensor Measurement Resolution  
0.1 Unit of measure

Accuracy  
0.2 in at 10.0 ft. (5 mm at 3.05 m)

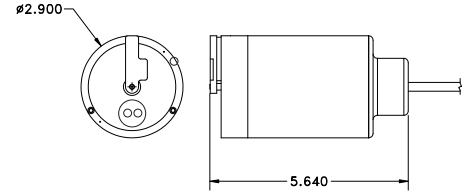
### Turbidity

Measurement Principle  
90 degrees scattered light, pulsed LED

Range  
0-50 NTU

Repeatability\*  
1% @ 50 NTU

Certifications  
CE



\* Accuracy has been tested under controlled conditions using a Formazin solution and field results of  $\pm 2\%$  across the measurement range can be expected with an installation on a properly grounded circuit. Since the sensor is installed in an active filter, turbidity readings can be affected by bubbles, poor electrical grounding, localized flow rate at the sensor, and heavier suspended solids that may be present dynamically.

## Controller

Operational Conditions  
-40° to +140°F (-40° to +60° C)

Power Requirements  
100 to 240 VAC, 50/60 Hz - 1A  
Power 65 W (fused)  
Optional: 24VDC

Display  
Graphical backlit monochrome screen  
Resolution: 320 x 240 pixels  
Viewing Area: 2.6 x 3.45 in (92 x 122 mm)

Reported Measurement Resolution  
1.0 (in & cm), 0.1 (ft), 0.01 (m), 0.1 (NTU)

Communications  
RS-485 -MODBUS RTU  
(2) 4-20mA Output  
(1) Media Level, Expansion, or Percent Expansion  
(1) Turbidity

Integral RF Module (Optional)

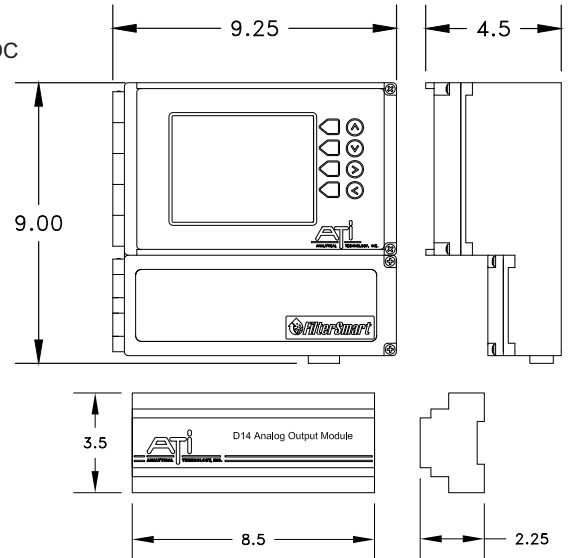
Relays (Optional)  
Four relays: 10A @ 250 VAC; 10A @ 30VDC

Mounting Configurations  
Surface and pipe mounting

Enclosure  
NEMA 4X, IP65; Polycarbonate

Certifications  
CE

Modbus to Analog Output Converter (optional)  
18-30VDC  
DIN Rail Mount  
Up to 16 isolated analog outputs (enough for 8 sensors)



## Power Supply Unit (Required only in multi-sensor network applications)

Operational Conditions  
-40° to +140°F (-40° to +60° C)

Power Requirements  
100 to 240 VAC, 50/60 Hz - 1A  
Power 20 W - 1.34A  
Optional: 24VDC

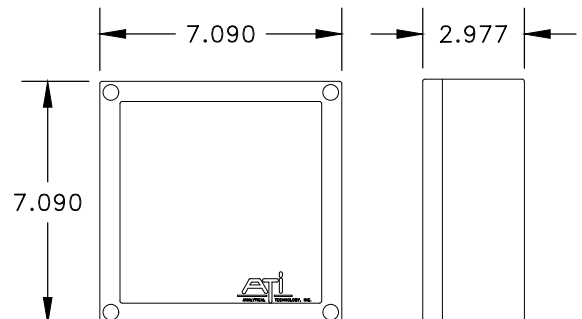
Communications  
RS-485 MODBUS RTU  
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Integral RF Module (Optional)

Mounting Configurations  
Surface and pipe mounting

Enclosure  
NEMA 4X, IP65; Polycarbonate

Certifications  
CE



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Systems are available as standalone instruments or highly cost-effective multiple sensor networks!



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