

# Smith Meter® Ultra™ Series

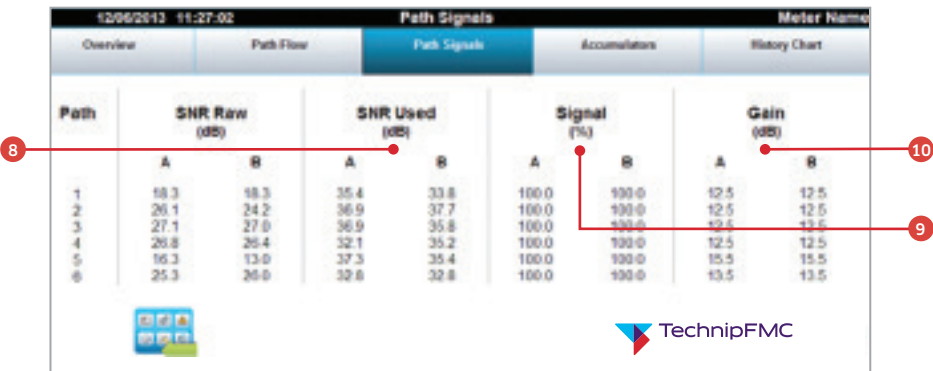
Diagnostics and online support services



# Smith Meter® Ultra™ Series diagnostic features



The Ultra Series user interface provides a uniquely categorized main menu that offers simple selections making it easy to navigate and view meter information. These main menu categories provide an Overview, Settings, Alarms, Run Data, Diagnostics, and Meter Information used during meter setup, operation, and performance monitoring. The historical data files can be downloaded from the meter which contains complete log files of the meter operation including the database, parameters, change logs and alarm conditions for tracking and remote support.



## Fluid properties

- 1 **Viscosity, Density, and Reynolds Number** – Properties are estimated using algorithms with temperature and pressure inputs.

## Flow profile parameters

- 2 **Profile Flatness** – Axial flow velocity of outer paths compared to the center paths. Reynolds number dependent.
- 3 **Profile Symmetry** – Velocity of top paths compared to the bottom paths. Reynolds number dependent.
- 4 **Swirl Flow** – Amount of transversal flow that is rotating in the pipe. Reynolds number dependent.
- 5 **Cross Flow** – Amount of transversal flow that has two rotating vortexes. Reynolds number independent.
- 6 **Turbulence** – Describes the stability of the flow measurements on each path. Flow velocity dependent.

Note: Swirl and Cross Flow are only available with the Ultra 6c or 8c meter.

## Signal parameters

- 7 **Velocity of Sound (VOS)** – Measured on each path to ensure correct measurement of ultrasonic pulses. Density dependent.
- 8 **Signal to Noise Ratio (S/N)** – Measures the signal strength to the process noise, typically >20dB. Used drop in performance on similar conditions should be examined.
- 9 **Signals %** – Designates the signal quality. Should be > 50%. Drop in performance on similar conditions should be examined.
- 10 **Gain** – Indicates signal strength. Influenced by density, viscosity, and impurities.

The Ultra Series diagnostics can give users information on profile flatness and symmetry.

Additional parameters such as VOS, signal strength, gain and S/N ratio are very important for signal integrity ensuring that you know how the meter is performing.

## Real time tools to ensure the most accurate measurement

The Smith Meter Ultra Series diagnostics provide the operator with the real time tools to monitor the meter's health, performance, and operating conditions ensuring the most accurate measurement over time. The visual interface to the meter electronics is accessed through any simple web browser and the meter's unique IP address through a secure network. Because the meter is the server, no additional software is needed to maintain on your PC or hand held device.

One of the unique features of the Smith Meter Ultra Series electronics is its on board memory. While other meters require PC memory to log meter performance data after an alarm, the Ultra Series meter stores the meter data in real time. This becomes important when evaluating an alarm condition because you can see the meter performance before, during, and after an alarm condition. This provides the critical data and insight for fast troubleshooting and decision making in service.

## Remote support from factory experts

- ▶ Web-based meter software does not require special interface software, improving access to meter diagnostic features and fluid property calculations
- ▶ Service technicians can access a meter from any computer with a secure network connection allowing fast and more flexible access to diagnostic information
- ▶ Simple intuitive screen designs encourage usage of advanced features and diagnostic capabilities
- ▶ Download historical log files from the meter's on board memory to compare conditions before, during, and after process upsets or line integrity alarms for an in depth follow up

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SFLS003 Issue/Rev. 0.2 (10/20)