M800 Multi-Channel Transmitter

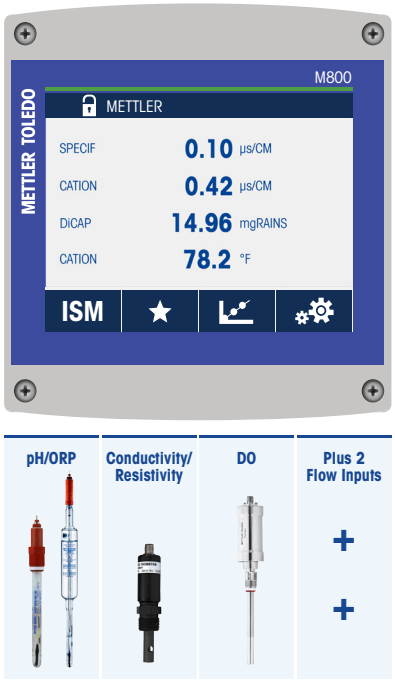
# The Power of the M800
## Real-time Diagnostics for Water Systems

As the power industry evolves and staffing is optimized for greater efficiency, having the right tools and diagnostics empowers power plants to manage increasing workloads effectively. Consequently, power plants can focus their staff efforts on critical decision-making and maintenance activities, minimizing unnecessary labor while maintaining high reliability and preventing costly equipment failures.

Plant chemistry plays a significant role in the challenges faced by power plants. Issues include exhausted cation columns, poor maintenance of sensors and analytics, overdosing, and poor management of traditional additives. These problems often lead to false alarms throughout the water system process, including make-up water, feedwater, boiler, steam, and condensate.

Having the right analytics and supported derived measurements helps reduce and eliminate false alarms, which cause unnecessary investigations and increased workload. These instruments enable automated monitoring and early detection of equipment conditions, reducing the need for constant manual oversight.

Our M800 transmitter offers more than just a display of digital sensor measurements. It is a multi-channel (2- or 4-channel), multi-parameter (flow, temperature, conductivity, pH, DO) transmitter that provides sensor health information and calculated measurements. This helps diagnose whether an alarm is true or false, improving plant reliability and efficiency.

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**Simplify User Experience**
Streamlining the user experience with ISM Core™ software and the overall digital Intelligent Sensor Management (ISM™) technology provides significant benefits to the power industry by supporting the three pillars: **Measure, Integrate, and Manage.**

### Measure.

ISM sensors, such as the pHure Sensor® and Optical DO sensors, offer high accuracy, fast response, and low maintenance, which are critical for power plant water quality control.

### Integrate.

ISM supports seamless integration with existing automation systems through industrial communication protocols like EtherNet/IP and PROFINET, especially with the M800 transmitter family.

### Manage.

ISM Core software enables efficient and safe sensor management by allowing convenient sensor calibration away from the process, automatic transmitter configuration via Plug and Measure, and comprehensive sensor diagnostics.

Together, these pillars help power plants achieve consistent, reliable, and cost-effective process control, reduce maintenance efforts, and ensure compliance with industry standards, ultimately enhancing operational efficiency and safety.

**Sensor Health Information**
Trust that your sensors are always measuring accurately by using our digital ISM™ sensor technology. ISM provides a unique set of diagnostics to ensure sensors are operating effectively and efficiently at all times.

### Dynamic Lifetime Indicator

Replace a sensor when it's needed – not too early, not too late.

### Time to Maintenance

Ensure a sensor is performing at its best – avoid unexpected failure.

### Adaptive Calibration Timer

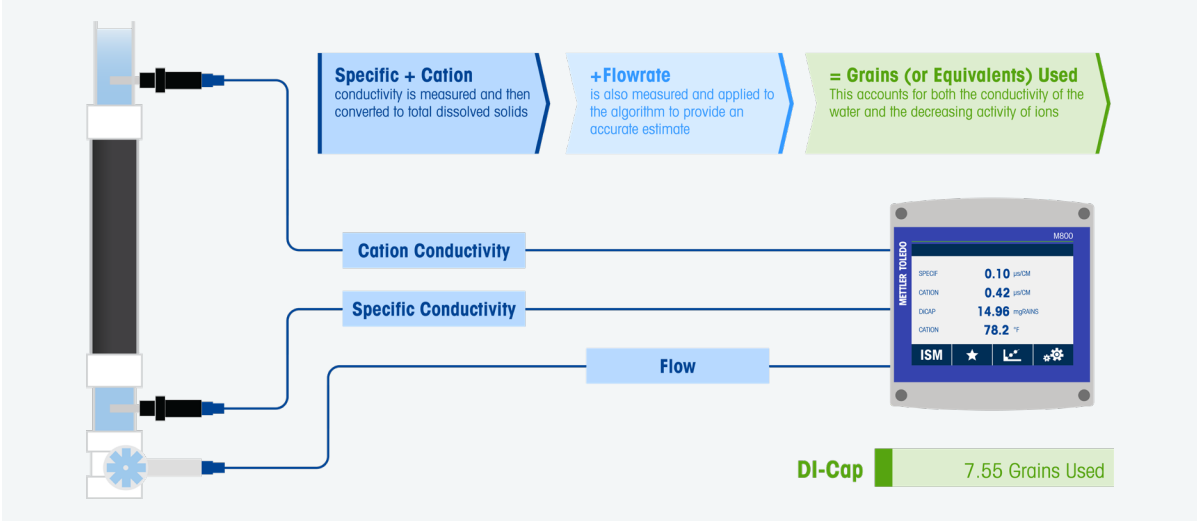
Use sensor's history to accurately calculate next calibration – avoid unnecessary calibration.

**Calculated measurements**
Enhance your analytics with the powerful features **already available** in our M800 transmitters. Our transmitter provides temperature compensation for specialized measurements in the power industry, including Cation, Degas, $NH_3$, and HCl. We offer calculated values for pH, $CO_2$, % Rejection, and DI capacity. No other transmitter in the

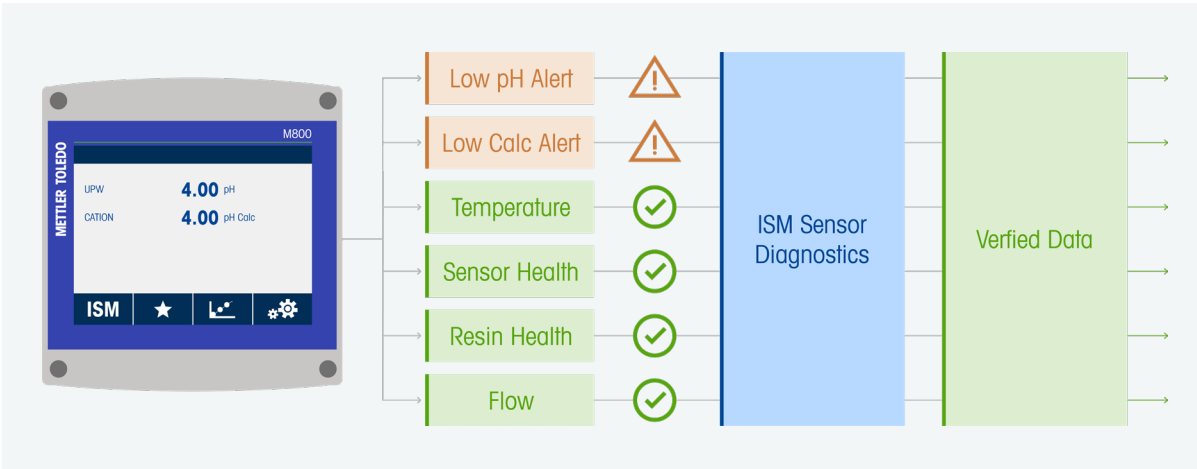
industry can dynamically adjust measurements based on changes in flow, water quality, ammonia/amine dosing, and resin quality, and can be calibrated to your specific water conditions for improved accuracy.

Using these powerful features can greatly enhance your process efficiencies. For example, the DiCap (Deionization Capacity Monitoring) feature functions like a gas gauge in your vehicle, indicating how much time remains before your resin bed is fully exhausted.

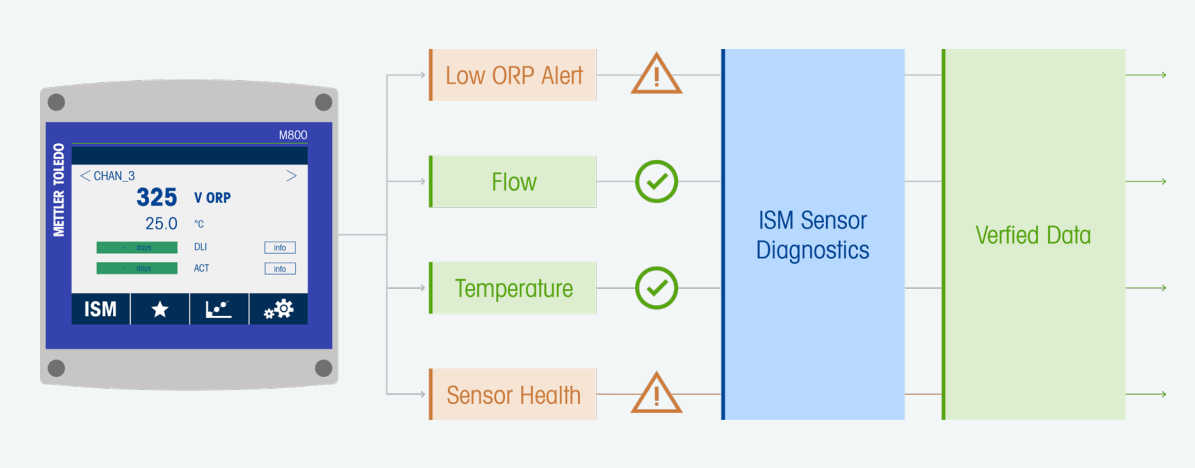
The M800 uses key measurements already in place, such as cation conductivity, specific conductivity, and flow, to derive the DiCap measurement. This approach is more accurate than simply using total flow as a criterion for regeneration because it accounts for changes in water composition and flow variability. The DiCap tool provides real-time feedback on the percentage of resin capacity used and estimates the remaining time until regeneration is needed. This helps avoid premature regeneration, reduces chemical usage, and prevents running the resin to exhaustion during unattended periods.




Use the power of the M800 to verify water chemistry alarms. By comparing the calculated pH with the actual pH sensor measurement, you can confirm whether the process water pH is truly alarming. As shown below, checking both measurement points together provides a reliable confirmation.



By using our digital ISM sensor technology, you can determine whether the alarm is caused by a sensor issue or by the water chemistry. As illustrated below, you can use the diagnostic information to assess sensor health and verify if it is providing reliable measurements.




With the additional data provided by our M800 transmitter, you can send information via 4-20mA or Ethernet/IP to your control panel. This data is crucial for identifying whether an alarm is a "false positive" or if your water chemistry is indeed at risk. You can implement a decision tree to assist less experienced staff in diagnosing fault conditions, thereby reducing unnecessary investigation time and minimizing downtime.

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For more information