

## THE FLUIDION® E-CHEM® V2 CHEMICAL ANALYZER

The autonomous microfluidic lab-on-chip platform for water quality monitoring

Fluidion® introduces the e-Chem® V2 Chemical Analyzer, an autonomous and cloud-connected lab-on-chip system that allows for accurate multi-parameter water chemistry measurements in different types of water. Fully designed in a modular and compact format, the e-Chem V2 provides sensitive measurements of complex water quality parameters, while generating minimal waste thanks to its patented microfluidic technology

### An automated lab-on-chip chemical analysis system

The in-line e-Chem® V2 Chemical Analyzer is a highly miniaturized system capable of fully autonomous multi-parameter chemical analysis of drinking water, performing standard EPA-compliant wet chemistry protocols and implementing the latest advances in microfluidic technology. Utilizing efficient effluent filtration and only minute amounts of sample and reagent per measurement, the e-Chem® V2 can operate continuously for weeks while generating minimal waste. The system allows for control from a touch screen interface or from your computer or mobile device, with data transmitted wirelessly in real time to the cloud for processing and visualization, allowing for fast operational response and optimal tank management. The e-Chem® V2 can also provide data to client servers via APIs.



### Modular and compact, designed for flexibility

The e-Chem® V2 has been redesigned as a modular system for flexibility to fit in a variety of settings, and the ability to customize the configuration according to measurement requirements. Based on EPA-compliant standard wet chemistry laboratory methods and multispectral optical detection, the e-Chem® V2 can also be equipped with a reagent-less UV spectral analysis module. New measurements and specific protocols can be implemented with over-the-air upgrades requiring no hardware modifications.

### Simple installation and maintenance

The e-Chem® V2 is suitable for installation in a facility or in the field. Operating on a rechargeable battery, it can provide measurements even in remote locations far from the power grid. Periodic maintenance consists of swapping the battery and reagent every 4 to 12 weeks, depending on measurement frequency, and changing the solid effluent filter or emptying the waste reservoir, depending on configuration. No regular field calibration is needed.

### TECHNICAL SPECIFICATIONS

<b>Overall Dimensions</b> (Height x Width x Depth)	43 cm x 31 cm x 21 cm (17" x 12" x 8.2")	<b>Min sampling period</b>	15 minutes
<b>Autonomy</b>	2-12 weeks depending on measurement frequency	<b>Installation</b>	Flat plate or compact mounting hardware available
<b>System Weight</b> (with / without battery)	7.9 kg / 6.4 kg (17.5 lbs. / 14 lbs.)	<b>Operating Temperature</b>	5 – 50 °C (41 – 122 °F)
<b>Sample Line Pressure<sup>1</sup></b>	50 – 210 kPa (7 – 30 psi)	<b>Enclosure rating</b>	IP65
<b>Power</b>	12V supply or Li-Ion battery	<b>Warranty</b>	12 months

<sup>1</sup> Higher inlet pressures can be accommodated using a pressure regulator.

## AVAILABLE PARAMETERS<sup>2</sup>

Parameters	Measurement Method
Total Cl, Free Cl, Nitrite, Ammonium, Orthophosphates, pH	Colorimetry
DOC, Nitrate	UV Spectroscopy
Tank Water Level, Sample Temperature	MEMS / Solid state sensor

<sup>2</sup>Additional parameters and detailed specifications available upon request. Water quality parameters listed are the available ones for custom configuration; instrument can measure up to three colorimetric parameters at a time, depending on reagent requirements. Tank height and temperature are standard measurements. Measuring range can be customized to customer's application and requirements.

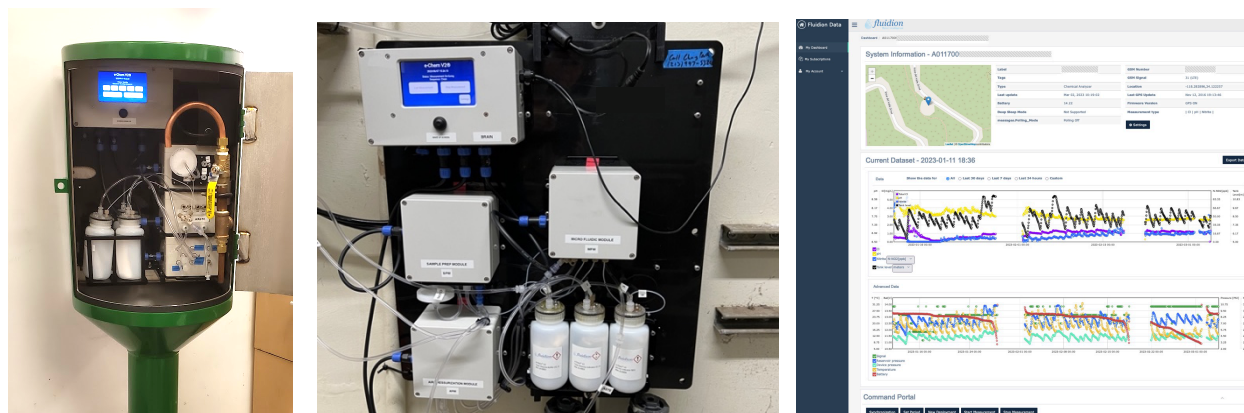
## Reliable and accurate measurements

Based on EPA-compliant wet chemistry protocols, the e-Chem<sup>®</sup> V2 brings lab-equivalent accuracy to the field. No field recalibration is needed for the life of the instrument, allowing it to provide continuous uninterrupted data that you can count on. The system also allows for measurement verification in the field using standard solutions.

## System configuration and data communication

The e-Chem<sup>®</sup> V2 is equipped with a water inlet for sampling from a pressurized supply, or can optionally include a miniaturized peristaltic pump to deliver the sample to the unit. Several microliters of the water sample are mixed with reagent and routed through an internal microfluidic analysis circuit, where the colorimetric chemical measurement is performed. The resulting waste is collected in a small external waste tank, or adsorbed on the optional solid effluent filter. The system is housed inside IP65 housing, which makes outdoor installation possible. Communication is performed via cellular network using the internal or external antenna, depending on the installation environment.

The e-Chem<sup>®</sup> V2 uses a wireless communication protocol based on cellular network for both system configuration and data management. The system can be configured and operated from the embedded touch screen, from a computer, or using smart phone via an intuitive cloud interface. Real-time data is sent via cellular network to the Fluidion cloud-based data management and visualization server, from where it can also be retrieved using an API for display in customer dashboards.



**Left:** Compact installation inside a sample tap. **Middle:** Wall-mounted installation. **Right:** Fluidion cloud data analytics interface.

Fluidion<sup>®</sup> designs and manufactures innovative sample collection and chemical/microbiological in-line and in-situ analysis instruments for water quality monitoring and environmental applications. The core technology relies on Fluidion's proprietary patented fluidic and sampling systems.