

Frequently Asked Questions: Ultra Low Range CL17sc



Why did Hach develop the Ultra Low Range CL17sc?

There is a market need for accurate measurement of residual chlorine at a very low range of concentrations, which also includes the dechlorination applications to measure absence of chlorine. The existing CL17sc analyser allows to measure a wide range of concentrations and its Ultra Low Range version was designed to focus on the lower end by utilising specially developed and validated calibration, which allowed for accurate measurements at low ppb (parts per billion or µg/L) levels of chlorine.

What does Ultra-Low Range mean?

Ultra-Low range of analyte usually means its concentration is routinely below 0.2 mg/L or ppm (parts per million) that corresponds to 200 µg/L or ppb (parts per billion), e.g. of chlorine in the water.

How is the Ultra Low Range CL17sc different than the CL17sc?

The critical difference between the two analysers is the ability of the Ultra Low Range CL17sc to achieve limit of detection at 8 ppb of total chlorine. It provides better accuracy in the parts-per-billion measurement range, making treatment decisions more meaningful and straightforward. The improved accuracy at this low range is critical to dechlorination customers who know that a 10-ppb change in chlorine concentration can mean shortening the lifespan of an RO membrane by 25%, providing unacceptable finished water chlorine levels, or exceeding residual chlorine discharge permit limits.

The Ultra Low Range CL17sc also provides a "Cumulative Chlorine" measurement tracking exposure of membranes to chlorine over time.

What is a Cumulative Chlorine Counter?

Chlorine damage to customer assets can be irreversible, so it is valuable to know how much chlorine your assets have been exposed to over time. The Ultra Low Range CL17sc Cumulative Chlorine Counter tracks chlorine exposure in ppm-hours. Customers can reset the counter at any time and can set alarm limits in ppm-hours to alert when chlorine exposure exceeds a desired limit.

As a point of reference, many RO membranes double their salts passage after roughly 1,000 ppm-hours of chlorine exposure. That's an average of only 38 ppb (parts per billion) over three years!

Why only total chlorine and not free?

Total chlorine analysis allows measuring either free chlorine only, or chlorine along with other oxidants that may be detrimental to the membranes. Therefore, total chlorine measurements provide the necessary assurance in any membrane protection applications, especially after adsorption-based dechlorination that can create various chloramines, which presence may be missed by free chlorine methods.

What applications are ideal for the Ultra Low Range CL17sc?

The Ultra Low Range CL17sc is best suited for clean water that is measured for either presence of chlorine at low levels or its absence, e.g. after dechlorination. Such applications can be found in any processes involving nanofiltration or reverse osmosis membranes. The industries with such applications range from power, semiconductors, and pharmaceuticals to beverage, petrochemical, and drinking water.

Is the Ultra Low Range CL17sc right for me?

If your processes involve RO membranes and/or any form of dechlorination, such as chemical (e.g. sulfite/bisulfite) and/or adsorption (e.g. activated carbon), the Ultra Low Range CL17sc can be used to ensure presence of chlorine at very low levels, or its complete absence, depending on the needs of your process and equipment.

I just bought a CL17sc. Can I upgrade to the Ultra Low Range CL17sc?

Please contact your local Hach® sales representative for available programs to upgrade to an Ultra Low Range CL17sc in your region.

Does the Ultra Low Range CL17sc use the same reagents as the CL17sc?

While using the same chemistry, the Ultra Low Range CL17sc reagents are sold under a different part number to ensure application traceability.

Does the Ultra Low Range CL17sc require an SC controller?

Yes, the Ultra Low Range CL17sc requires an SC controller to operate. The Ultra Low Range CL17sc can be managed from current Hach SC controllers.

Is the Ultra Low Range CL17sc Claros enabled?

Yes, the Ultra Low Range CL17sc comes ready to be used with Hach's innovative Claros Mobile Sensor Management, which allows users to view measurement data and instrument status anytime, anywhere, on any web-enabled device. Be sure to choose a Claros enabled controller when you purchase your new Ultra Low Range CL17sc.

I see that there are two installation kits for the Ultra Low Range CL17sc – which one is best for me?

Users can select one of two installation kits at the time of purchase, both of which are designed to manage sample pressure to the analyser:

Standpipe installation kit: Works well in all conditions. The standpipe has no moving parts, making it very reliable. This installation kit requires two feet of space above the top of the analyser, so keep that in mind as you think about your installation space.

Pressure regulator installation kit: Works well in all conditions except for when sample pressure is consistently at the low end of the analyser's specifications. This installation kit is compact, so it may be the best choice when there is not enough space above the analyser for a standpipe installation kit.

What Hach Service Plans are available with the Ultra Low Range CL17sc?

A comprehensive portfolio of Service Plans is available to meet your needs. Please refer to our Ultra Low Range CL17sc Service Overview for details.

What are the benefits of the Ultra Low Range CL17sc?

The Ultra Low Range CL17sc provides the residual chlorine data you need to take total control of your dechlorination process. The stable and dependable measurement from this instrument gives you the confidence you need to optimise

your process, protect your assets, produce water within your precise specifications, and meet regulatory residual chlorine limits. Unlike ORP/Redox and Amperometric technologies, the accuracy of this colorimetric analyser is unaffected by changes in sample pH, temperature, Cl₂ concentration, or flow.

Why should I use the Ultra Low Range CL17sc instead of ORP/Redox?

There are several advantages of seeing direct chlorine concentration vs. relative mV readings. Among critical few are the independence of colorimetric measurement from any matrix influence, such as pH, temperature, conductivity, its established calibration curve, as well as equal and accurate reaction to either rise or drop in chlorine concentration.

Why should I use colorimetric versus amperometric technology?

Major advantages of colorimetric technology over amperometric are the independence of changing sample matrix conditions (e.g. pH, temperature, flow/pressure) and established calibration curve (no need to calibrate frequently or routinely). Unlike amperometric sensors, colorimetric instrumentation will not lose sensitivity to chlorine after its absence for an extended time. These advantages provide uncompromised accuracy of the measurements, which may prove to be more important than speed of response provided by the amperometric technology.

Why should I trust the readings of the Ultra Low Range CL17sc?

Colorimetric measurements are based on a fundamental physical law and the factory calibration of the Ultra Low Range CL17sc was built upon that law. The Ultra Low Range CL17sc calibration curve was thoroughly validated by Hach via rigorous testing and therefore the analyser's readings provide the most accurate reflection of chlorine concentrations in the water without adjustment to accommodate sample conditions.

Is the Ultra Low Range CL17sc calibration stable?

The Ultra Low Range CL17sc comes factory calibrated, and the calibration remains very stable over time. As with any analytical instrument, we recommend that you verify the calibration at least twice per year after performing the routine maintenance to assure measurement accuracy. Included with every Hach Service Plan is a three-point, full-range calibration verification with primary chlorine standards, as well as an additional check standard to verify performance at the low end of the measuring range.

How do I order an Ultra Low Range CL17sc?

Contact your local Hach representative. E-mail and phone numbers can be found on www.hach.com.