

## Chlorine Analyzer

### Introduction

Chlorine has remained the most widely used chemical for disinfection for almost 100 years and is now used in the manufacturing of many products. Through decades of research, scientists have learned to use chlorine to make drinking water safe, destroy life-threatening germs, produce life-saving drugs and medical equipment, and ensure a plentiful food supply. Every year, approximately 13.6 million metric tons of chlorine are produced in North America alone. In countless industrial processes which require strict monitoring, there's simply no cost-effective, safe substitute for chlorinated compounds. Fortunately, CST's Chlorine Analyzer is designed for continuous, real-time monitoring of free chlorinated species in water.

### Features

- ◇ Continuously and accurately measures the presence of free chlorinated species in water using UV spectroscopy without the need for chemical reagents.
- ◇ The all-inclusive Chlorine Analyzer comes preassembled in a waterproof NEMA4X enclosure with a dedicated sample flow cell outside of the enclosure. The analyzer includes a PX2+ photometer with two fiber optic cables and a flow cell with two optical interface couplers.
- ◇ Easy to use software with a digital touch display allows users to view data and calibrate.
- ◇ High reliability with a typical light source lifetime of 10 years.
- ◇ Standard data outputs include MODBUS, 4-20mA, and USB to CST Software.
- ◇ Low cost of ownership with no routine maintenance.
- ◇ Optional pH sensor can be introduced to convert the PX2+ to a dual analyzer.

### Industries

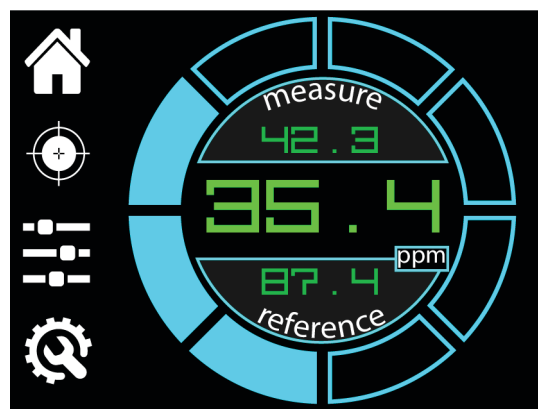
- ◇ Agriculture
- ◇ Plastics
- ◇ Pulp and Paper
- ◇ Textiles
- ◇ Waste Disposal

### Applications

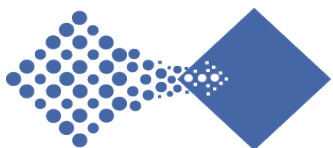
- ◇ Bleach Production
- ◇ Cooling Water
- ◇ Industrial Waste Water
- ◇ Potable Water
- ◇ Chloramination Control



*CST's Chlorine Analyzer includes a PX2+ with (2) fiber optic cables and a flow cell with (2) optical interface couplers*

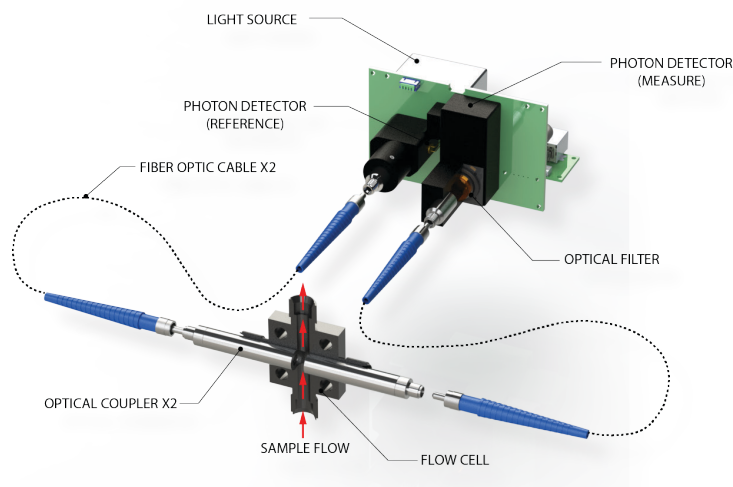


*PX2+ Capacitive Touch LCD*



### Theory of Operation

The use of ultraviolet spectroscopy is certainly the best method of measurement for free chlorinated species in water. CST's Chlorine Analyzer contains a PX2+ photometer that utilizes Beer's Law, the attenuation of light as it passes through a substance, to monitor changes in properties of an analyte in process. It sends optical radiation from a flash lamp within the instrument out to a flow cell and returns the signal to the instrument via optical interface couplers and fiber optic cables. The PX2+ uses optical filters to provide specific measure wavelength ranges chosen to coincide with free chlorinated species absorbance. As compared to electrochemical cells, this method of analysis for free chlorinated species produces results in real-time without the need for costly reagents or membrane changes.



### Technical Specifications

General	
Range	Free or Combined Chlorine, HOCL, OCL <sup>-</sup> , Chloramines, or Chlorine Dioxide in Water: PPM to % Levels
Repeatability	± 1% of Full Scale
Measurement Principle	UV Absorbance
Light Source	Xenon Flash Lamp
Detector	Silicon Photodiode
Fiber Optic Cables	(2) 2 meter, 600 micron core
Sample Introduction	Titanium or PVC Flow Cell
Process Pressure	2000psi max
Minimum Flow Rate	100 ml/min
Calibration	Analyzer is calibrated with customer sample; measurement normalized by zeroing every 1-2 months or as needed.
Response Time	1 second
Power Requirement	24VDC nominal (12-48VDC), 8.5 watts max
Dimensions of Photometer	2.8" H x 4.5" W x 9.5" L
Weight of Photometer	~3.5 lbs. (1.6 kg)
Enclosure	NEMA4X anodized aluminum

PX2+ Operating Conditions	
Process Temperature	204°C
Operating Temperature	5°C to 50°C
Storage Temperature	-20°C to 50°C

Communications	
Outputs	4-20mA, RS-485 (MODBUS), or USB
Alarms	Contact closure (60VDC, 0.75 A max)
Display	3.2" capacitive touch LCD

\*All information provided in this datasheet is subject to further application engineering based on customer sample.