

## SYSTEMS

# CA8: Colorimetric Analyzer

Digital technology for optimized measures



### FEATURES & BENEFITS

- ☐ **Straight forward Deployment**
  - Effortless installation
  - Simple Touchscreen Interface
  - Configuration is fast and intuitive
- ☐ **Trouble-free Design**
  - Thick Gauge Steel Cabinet
  - Corrosion Resistant Epoxy Powder Coated
  - Electronics Isolated from Sampling Bench
  - Multiple Alarms
- ☐ **Low Cost of Ownership**
  - Programmable Cycle Times minimize reagent waste
  - Designed for Low Maintenance and Long Life

### PARAMETERS

- ☐ Aluminum
- ☐ Ammonia
- ☐ Arsenic
- ☐ Chlorine      Chloride
- ☐ Chromium VI
- ☐ Copper
- ☐ Cyanide
- ☐ Iron
- ☐ Manganese
- ☐ Nickel
- ☐ Nitrite
- ☐ Phosphate      Total Phosphate
- ☐ Silica
- ☐ Sulfate      Sulfide
- ☐ Zinc

## DESCRIPTION

The **CA8 Analyzers** are simple and reliable, fully integrated analyzer systems for online sampling applications. The CA8 analyzers are based on industry standard Colorimetric or Ion Selective Electrode (ISE) technologies. The flexible platform allows measurements of up to four parameters.

The CA8 Analyzer installation is straightforward. The cabinets come equipped with solid wall mounting hardware with an optional bench stop stand and reagent holder. The CA8 is factory calibrated, so the startup is quick and easy: connect the input, output, and reagent lines, plug in the wall power and the CA8 is ready. The touchscreen user interface through a simple, intuitive menu allows ready access to system setup and operation. Custom analysis routines, sample sequencing, programmable cycle times, and data access are easily accomplished.

The analyzer incorporates two compartments that isolate the electronics from the chemical analysis bench, keeping the electronics away from the liquid handling hardware. This design ensures trouble-free operation and enhanced reliability. Compartmentalization also allows easier and faster maintenance, troubleshooting, and servicing.

The CA8 colorimetric analysis is an industry standard approach for elemental measurements. The addition of specific reagents to a sample causes a color change that is proportional to the concentration of the parameter of interest. The color change is measured by the absorbance of the solution through a Quartz

Reaction Cell at a specific wavelength using a long-life LED light source and a photometer. The absorbance is related to the sample concentration according to 'Lambert-Beer Law'.

In operation, the CA8 is programmed to make two measurements per measurement cycle: a baseline measurement without reagent followed by a measurement with added reagent. The relative concentration is calculated from the difference between the baseline measurement and the color formation measurement. The absolute concentration is then derived from the factory stored calibration data. This is standard practice when making absorbance measurements of a solution.

The CA8 analyzer analysis cycle generally starts with an automatic drain and rinse prior to sampling. The auto sampler next introduces the sample, a baseline measurement is obtained, followed by addition of reagents, mixing, wait time, and then the analysis measurement. Higher Range samples are accommodated using the optional Dilution Module providing 10:1 or 50:1 dilution ratio.

Several ISE's require significant sample conditioning before an accurate measurement can be made. In these cases, the CA8 facilitates the on-line measurement by reducing the amount of conditioning chemicals required and minimizing the associated volume of waste.

The CA8 Analyzer dashboard displays system status, measured parameters, time, % reagent volumes, and on-screen HELP menu.

## SPECIFICATIONS

<b>Method:</b> Photometric differential absorbance or ISE	<b>Analog output:</b> 4-20 mA
<b>Measuring Range:</b> Refer to the specific parameter for the colorimetric measurement range	<b>Alarms:</b> 2 configurable relays
<b>Response time:</b> Dependent on the specific colorimetric measurement	<b>Reagent Consumption :</b> Dependent on the specific colorimetric measurement, approximately 2500 tests per liter of reagent
<b>Repeatability:</b> $\pm 2\%$ on absorbance value with turbidity < 80 NTU	
<b>Drift:</b> $\pm 2\%$ per month on the absorbance measurement	<b>Sample</b>
<b>Power Supply:</b> 110-220VAC, 50-60 Hz, 80 VA	<b>Inlet sample pressure:</b> Atmospheric
<b>Mounting:</b> Wall mounting or with optional bench support	<b>Outlet sample pressure:</b> Atmospheric, waste tubing O.D. 3/8"
<b>Operating Temp.:</b> 5-50°C	<b>Sample flow for the fast loop reservoir :</b> 100-500 ml / min
<b>Cabinet:</b> Cold rolled steel epoxy powder coated	<b>Connections:</b> To the fast loop reservoir with flexible tubing O.D. 1/4"

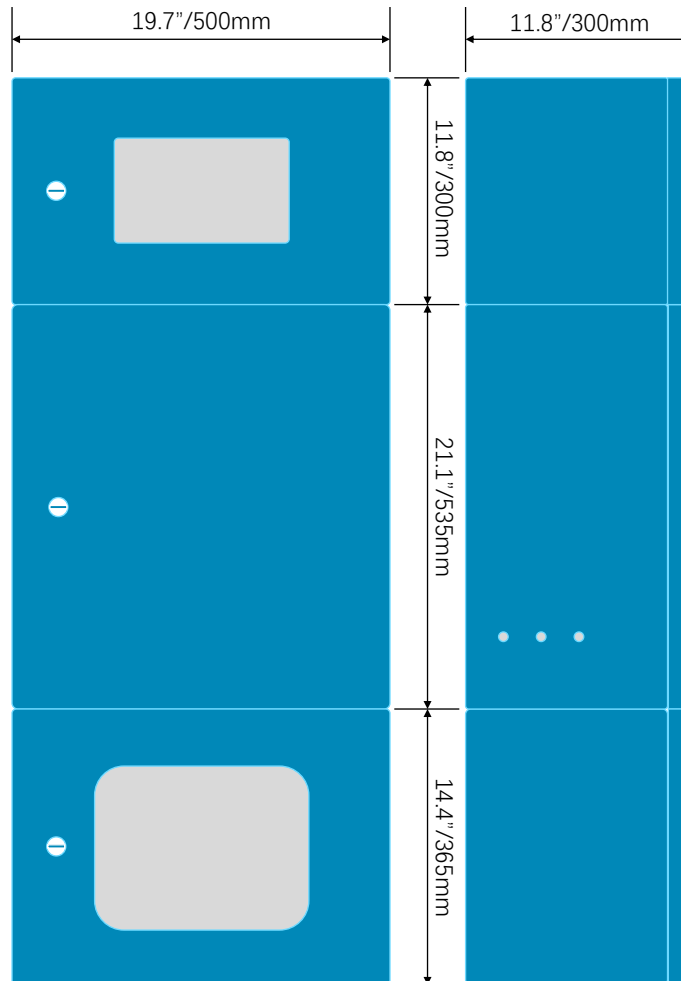
Parameters	Range	Low Detected Limit	Accuracy	Model #
Silica	0 - 1ppm (0 - 10/50ppm)	0.5ppb or 1% FS take the max.	±0.5ppb or ±1% FS take the max.	CA8-Si
Nitrate	0 - 200ppb (0 - 2/10ppm)	<0.5ppb	±0.5ppb or ±5% of reading take the max.	CA8-NO <sub>3</sub> -N
Nitrite	0 - 600ppb (0 - 6/30ppm)	<0.5ppb	±0.5ppb or ±5% of reading take the max.	CA8-NO <sub>2</sub> -N
CODcr	0 - 50ppm (0 - 200/500ppm)	1%FS	±2% FS	CA8-CODcr
Ammonia	0 - 1ppm (0 - 10/50ppm)	1% FS	±2% FS	CA8-NH <sub>4</sub> -N
Fluoride	0 - 5ppm (0 - 10/20/50ppm)	<3% FS	±5% FS	CA8-F
Cyanide	0 - 200ppb (0 - 2/10ppm)	<3% FS	±5% FS	CA8-CN
Sulfide	0 - 2.5ppm (0 - 25/75ppm)	1% FS	±2% FS	CA8-S
Sulfate	0 - 50ppm (0 - 500/2500ppm)	1% FS	±2% FS	CA8-SO <sub>4</sub>
Aluminum	0 - 200ppb (0 - 2/10ppm)	1% FS	±2% FS	CA8-Al
Arsenic	0 - 20ppb (0 - 300ppb)	0.1ppb	±5% FS	CA8-As
Tin	0 - 0.1ppm (0 - 1/5ppm)	5ppb	±5%FS	CA8-Sn
Copper	0 - 5ppm (0 - 50/250ppm)	1% FS	±2% FS	CA8-Cu
Iron	0 - 1ppm (0 - 10/50ppm)	<2% FS	±5% FS	CA8-Fe
Manganese	0 - 100ppb (0 - 1/5ppm)	<3% FS	±5% FS	CA8-Mn
Nickel	0 - 3ppm (0 - 30/150ppm)	<3% FS	±5% FS	CA8-Ni
Zinc	0 - 2ppm (0 - 20/100ppm)	<2% FS	±5% FS	CA8-Zn
Lead	0 - 50ppb (0 - 100ppb)	1% FS	±2% FS	CA8-Pb
Hardness	0 - 1ppm (0 - 10/50ppm)	2% FS	±5% FS	CA8-HD
Chromium VI	0 - 1ppm (0 - 10/50ppm)	1% FS	±2% FS	CA8-Cr <sup>6</sup>
CODmn	0 - 20ppm (0 - 200/500ppm)	1% FS	±2% FS	CA8-CODmn
Phosphate	0 - 5ppm (0 - 50/200ppm)	1% FS	±2% FS	CA8-PO <sub>4</sub>
Total Phosphate	0 - 3ppm (0 - 5/10/50ppm)	1% FS	±2% FS	CA8-TP
Total Nitrogen	0 - 2ppm (0 - 20/100ppm)	1% FS	±2% FS	CA8-TN

*Specifications subject to change without notice.*

## ACCESSORIES AVAILABLE

External Fast Loop Reservoir	
CA8TERLS000	External Reservoir - Polycarbonate (fast loop with level switch)
CA8TERLS000SS	External Reservoir - Stainless Steel (fast loop with level switch)

**DIMENSION**



**DELTA-PHASE ELECTRONICS, INC.**

3 Peters Canyon Rd, Suite 100,  
Irvine, CA 92606 U.S.A.  
Phone: (949) 701-7728  
<http://www.delta-phase.us>

**Represented by:**