

On-Line Sodium Analyzer

- **ONE BUTTON OPERATION.** One button starts, calibrates, and puts the analyzer on-line.
- **MULTIPLE SAMPLE OPTION.** Measure as many as six sample streams sequentially.
- **ROUTINE MAINTENANCE TAKES FIVE MINUTES EVERY THREE MONTHS.**
- **SELF-DIAGNOSTICS.** The analyzer monitors critical functions and alerts the user when a problem exists.
- **PRE-PACKAGED REAGENTS AND STANDARDS.** No messy chemical solutions to prepare and standardize. Reagents and standards come from the factory ready-to-use.



APPLICATIONS

The Model CFA3011 Sodium analyzer is intended for the determination of sodium in high purity water. The analyzer is ideal for measuring sodium in condensate and polisher effluent in high pressure steam power plants.

FEATURES AND BENEFITS

Simplicity, ease-of-use, and reliable operation characterize the Model CFA3011 Valve-Pump sodium analyzer. Place the color-coded reagent straw in the color-coded reagent bottle, place the standard straws in the high and low standards, and press a button. The analyzer automatically calibrates and puts itself in service. Once in service, the analyzer runs the 10 and 100 ppb standards twice a week.

Routine maintenance is simple. Replace the reagent and standards every three months. Replace the valve pump (the key to the reliable performance and low maintenance of the Model CFA3011) every year. Total maintenance time is at most one hour per year.

Using an optional built-in stream selector, the Model CFA3011 can measure as many as six sample streams sequentially. A single analog output is standard. A stream identification marker indicates the start of each new sample. A multiple output option in which a separate analog output is assigned to each sample stream is also available. With the multiple output option each output holds the last value until updated.

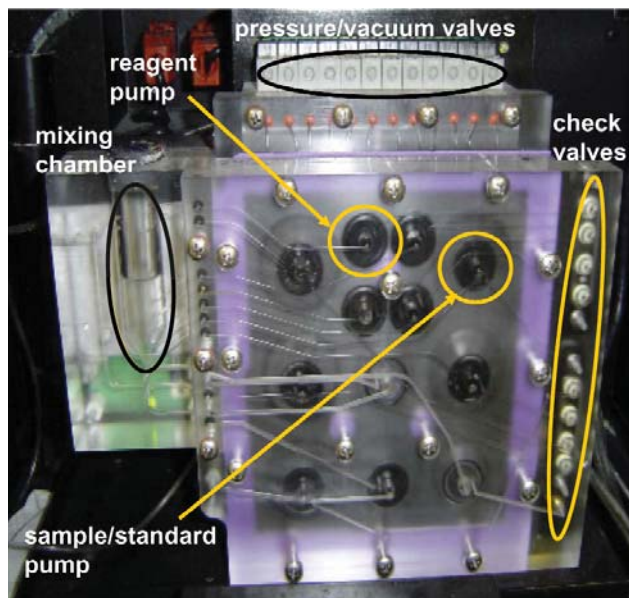
The Model CFA3011 Sodium Analyzer has a pumped reagent delivery system. Instrument air, needed for pressurized systems, is unnecessary.

The Model CFA3011 uses a batch measurement technique. The update rate is every 15 minutes.

PRINCIPLES OF OPERATION

The CFA3011 Sodium Analyzer uses a sodium sensitive measuring electrode and pH reference electrode. An organic base added to the sample raises the pH and eliminates interference from hydrogen and ammonium ions. The base also buffers the sample, ensuring a constant reference electrode potential.

The valve pump (shown at right) is the heart of the analyzer fluidics system. The pump has separate elements for sample, reagent, and standards. Each pump element consists of an inert flexible membrane in a cavity. A vacuum/pressure pump pushes and pulls on the membrane. Vacuum fills the cavity; pressure pushes liquid out of the cavity into the mixing chamber. Check valves prevent backflow. Air pumped into the mixing chamber mixes sample and reagent. After mixing, the sample is circulated between the measuring chamber, which contains the sensing and reference electrodes, and the mixing chamber until readings are stable. To reduce temperature-related errors, the measuring chamber is held at constant temperature. Once the measurement is complete, the sample is flushed out and the cycle resumes.



SPECIFICATIONS

Ranges: 0.01-1.0, 0.1-10.0, 1-100, and 10-1000 ppb. Higher two-decade ranges up to 1000 ppm are available.

Method: Potentiometric using ion specific electrode.

Sampling Method: Batch; update rate is every 15 minutes.

Precision: $\pm 1\%$ of full scale

Detection limit: 1% of full scale

Calibration standards: 10 ppb and 100 ppb. High ranges (ppm) use 10 and 100 ppm standards. Accuracy of is $\pm 1\%$.

Automatic calibration: Twice a week, requires about 40 min.

Reagent consumption: 5 L every three months

Standard consumption: 1 L of high standard and 1 L of low standard every three months

Sample requirements:

Flow: 10-15 mL/min (minimum)

Pressure: < 10 psig (< 170 kPa) (overflow cup must drain to atmosphere)

Temperature: 0-50°C (32-122°F)

Filter: 8 micron filter in sample inlet line is recommended.

Multiple sample option:

Up to six sample streams, measured sequentially.

Single output (standard): Output corresponds to sample currently being measured. A stream identification marker on a chart recorder indicates the start of each new sample.

Multiple output (optional): Each sample has its own output. The output holds last value when the analyzer changes to the next sample stream.

Outputs:

4-20 mA or 0-5 Vdc (non-isolated). Isolated output is optional.

Load requirements for 4-20 mA output: 450 Ω (minimum), 1200 Ω (maximum).

Load requirement for 0-5 Vdc output: 10k Ω (minimum).

Outputs are not scalable. The range of the outputs is the same as the measurement range.

Parallel output for printer. Standard on multi-stream instrument. Optional on single stream instrument.

RS232C output is standard on multi-stream instrument, optional on single stream instrument.

Alarms:

General: process alarms for streams 1 through 6, leak detection, LED failure, and calibration in progress.

Stream 1: separate high and low alarm relays; contacts are rated 2 A at 250 Vac or 3 A at 30 Vdc; delay on/off time is 1 min.

Streams 2 through 6 (multiple output option): one alarm relay for each stream; alarm can be configured as high or low; contacts have dc ratings only: 100 Vdc (maximum), 10 VA (maximum), 1.0 amp (maximum - carry only), 0.5 amp (maximum - switched); delay on/off time is 1 min.

Display: Single line LCD; 4 1/2 digits; readout in concentration units. For multi-stream option, display remains at last value until new stream reading is stable.

Status LEDs: for leak, source LED failure, hours remaining before maintenance, and calibration in progress; for multi-stream analyzers, status LEDs show the sample stream currently valved in and the sample stream for which data is being displayed.

Environmental: Install in a clean, indoor environment. Ambient temperature: 5-45°C (40-113°F). Avoid temperature swings greater than ±5°C (10°F) over a twelve-hour period. Humidity: 5-95% (non-condensing). Not for outdoor use.

Dimensions:

Height of analyzer cabinet: 25.75 in. (654 mm)
 Height of reagent cabinet: 18.25 in. (464 mm)
 Width: 18 in. (457 mm) includes hinges
 Depth: 16 in. (406 mm) includes rear mounting bracket

Space Requirements:

Wall mounting: Allow 18 in. (457 mm) on one side for swing out access to rear panel. Allow 12 in. (305 mm) on the other side for access to input/output panel and overflow sampler.
 Panel mounting: Allow 12 in. (305 mm) on both sides for access to input/output panel and overflow sampler.

Weight: 117 lb (53 kg). Add up to 60 lb (27 kg) for full weight of reagents and standards.

Shipping Weight of Analyzer: 147 lb (67 kg)

Shipping Weight of Reagents: 64 lb (29 kg) for three months supply

Power:

Standard: 115 Vac (±10%), 60 Hz, 3 Amp

Optional: 230 Vac (±10%), 50 Hz, 1.5 Amp

ORDERING INFORMATION

Model CFA3011 is a batch analyzer suitable for the determination of sodium in any two decade range between 0.01 ppb and 1000 ppm. Range must be specified at time of ordering. A single, non-isolated output is standard. Isolated outputs and multiple outputs (one output for each sample stream) are available as options and must be specified at time of ordering. 115 Vac, 60 Hz is standard; 230 Vac, 50 Hz must be specified at time of ordering. The analyzer is shipped with a three-month supply of reagents and standards.

MODEL CHEMPURE		CONTINUOUS FLOW ANALYZER				
CODE	DESCRIPTION					
185-A022-01C	Continuous sodium analyzer, single stream, single output. Specify range, output isolation, and power requirements.					
185-A022-02C	Continuous sodium analyzer, two stream. Specify range, output isolation, single output or multiple outputs, and power requirements.					
185-A022-03C	Continuous sodium analyzer, three stream. Specify range, output isolation, single output or multiple outputs, and power requirements.					
185-A022-04C	Continuous sodium analyzer, four stream. Specify range, output isolation, single output or multiple outputs, and power requirements.					
185-A022-05C	Continuous sodium analyzer, five stream. Specify range, output isolation, single output or multiple outputs, and power requirements.					
185-A022-06C	Continuous sodium analyzer, six stream. Specify range, output isolation, single output or multiple outputs, and power requirements.					
185-A022-01C	0.1 - 10 ppb	isolated output	single output	115 Vac	60 Hz	EXAMPLE

PARTS AND ACCESSORIES

CODE	DESCRIPTION
185-3011-30C	Reagent and standard kit. Includes 3-month supply of standards and reagents.
180-1341-08	Disposable cartridge filter (for overflow panel assembly)

NOTE: To order a yearly reagent and valve pump service contract, which includes a replacement valve pump, order four each of the part number. The replacement valve pump is shipped at the end of the year period. The customer returns the old pump to the factory to be rebuilt.



*The right people,
the right answers,
right now.*

ROSEMOUNT ANALYTICAL
CUSTOMER SUPPORT CENTER
1-800-854-8257



ON-LINE ORDERING NOW AVAILABLE ON OUR WEB SITE
<http://www.raihome.com>

Specifications subject to change without notice.



Credit Cards for U.S. Purchases Only.



Emerson Process Management

Rosemount Analytical Inc.

2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250

<http://www.raihome.com>

© Rosemount Analytical Inc. 2007

EMERSON
Process Management