

# General Specifications

## Model WE420 Sodium Analyzer

GS 12Y18A02-01EN

### ■ General

Monitoring the sodium ion content of steam and water circuits to produce accurate and reproducible results requires a very well designed and maintained system. The system must optimize the fluidic design with the sensing technology to enable low level (ppb) measurement of the contaminants as well as measuring across the linear range of the analyzer.

The Yokogawa WE420 sodium analyzer meets all of the criteria for accurate and dependable sodium monitoring and more. The WE420 analyzer incorporates innovative technologies that include:

- Premium electrodes
- Accurate and precise flow cell design
- Marquee help screen
- Pump-less reagent addition and DKA (double known addition) calibration system

### ■ Features

- Detection limit of 0.1 ppb – the WE420 offers flexible application packages ideally suited for continuous sodium analysis in a wide variety of samples
- Protect against the costly effects of corrosion with sensitive, selective, reliable and verifiable measurements that provide early warning detection of sodium
- Extremely easy to use while maximizing uptime – simple step-by-step scrolling instruction for setup, calibration, operation and diagnostics menus
- Measurements at a glance from any distance for even the lowest light conditions using the large operator friendly backlit display
- Fastest and most stable measurements, limiting unnecessary calibration cycles due to drift with new superior sodium electrode technology
- Minimize operator time and maintenance without use of complicated moving parts or pumps that often require frequent attention and expensive spare part expenditures
- Extend reagent consumption up to 3 months (application specific) while reducing costly waste disposal fees—innovative and simple reagent addition design conditions sample pH for optimal sodium electrode performance while suppressing interfering ions
- Advanced user interface with detailed calibration, measurement and diagnostic logs for early diagnostic and action level notification, configurable for your facility's desired level of performance – all password protected if preferred



- Simple and fast calibration cycles using double known addition – quickly have your system back on line with security and confidence
- Easy installation has your plant up and running in minutes

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## ■ General Specifications

### Measurement performance

Ammonia Application Package:

Range; 0.30 ppb to 200 ppm

Accuracy;  $\pm 5\%$  of reading or 0.3 ppb, whichever is greater

Resolution; 1, 2 or 3 significant digits

DIPA Application Package:

Range; 0.10 ppb to 10 ppm

Accuracy;  $\pm 5\%$  of reading or 0.1 ppb, whichever is greater

Resolution; 1, 2 or 3 significant digits

Response time: 90% within 5 minutes after

calibration with freshly etched sodium sensing electrode

90% of final reading within 5 minutes of

injecting a standard solution or

5 minutes maximum for time from 5%

to 90% of measured change following

dynamic addition of a standard solution

mV measurement:

Range;  $\pm 1999.9$  mV

Accuracy;  $\pm (0.5 \text{ mV} + 0.1\%)$

Resolution; 0.1 mV

Temperature measurement:

Range;  $-10$  to  $120$  °C

Accuracy;  $\pm 0.5$  °C

Resolution; 0.1 °C

ATC probe: 30 K thermistor

### Environmental

Ambient operating temperature:

5 to 45 °C (41 to 113 °F)

Storage temperature:  $-20$  to  $60$  °C ( $-4$  to  $140$  °F)

Humidity: 10 to 90% at 40°C (104 °F) (Non-condensing)

Shock and vibration:

Install in a place without vibration and impact

### Power

Power supply rating: 100 - 120 V AC, 200 mA, 50/60 Hz

or 200 - 240 V AC, 100 mA, 50/60 Hz

### Outputs

Analog outputs:

Number of analog outputs; 2

Output selections; 0/4 - 20 mA (Isolated)

Relative accuracy;  $\pm (0.05 \text{ mA} + 0.5\%)$

Maximum load; 500 ohm or 10 V

Relay outputs:

Number of relay outputs; 3

Maximum relay load;

250 V AC/5 A, 30 V DC/5 A, resistive load only

### Sample requirements

Sample flow: 40 mL/min nominal set by pressure regulator

Sample pressure (Inlet): 8 to 100 psig

Sample supply: Continuous

Sample temperature range: 5 to 45 °C (41 to 113 °F)

Sample inlet connections: 1/4 NPT female tube fitting

Drain tubing: 3/4 NPT male

Total alkalinity: Less than 250 ppm CaCO<sub>3</sub> equivalent

Sample streams: One

### Mechanical and others

Enclosure dimensions (HxWxD):

28 inches x 18.6 inches x 8.6 inches (711 mm x 472 mm x 218 mm)

Weight: Approx. 18 kg (40 lbs) without reagents

Display method: Custom backlit LCD

### Regulatory Compliance

Safety: EN61010-1

CAN/CSA-C22.2 No. 61010-1

UL Std No. 61010-1

Installation altitude: 2000 m or less

Category based on IEC 61010-1: II (Note 1)

Pollution degree based on IEC 61010-1: 2 (Note 2)

Note 1: Installation category, so called overvoltage category, specifies impulse withstanding voltage. Category II is for electrical equipment.

Note 2: Pollution degree indicates the degree of existence of solid, liquid, gas or other inclusions which may reduce dielectric strength. Degree 2 indicates the normal indoor environment.

EMC: EN 61326-1 Class A, Table 2

EN 61326-2-3

EN 61000-3-2

EN 61000-3-3

RCM: EN 61326-1 Class A, Table 2

Korea Electromagnetic Conformity Standard

Class A 한국 전자과적합성 기준

RoHS: EN50581

Information of the WEEE Directive

This product is purposely designed to be used in a large scale fixed installations only and, therefore, is out of scope of the WEEE Directive. The WEEE Directive does not apply.

The WEEE Directive is only valid in the EU.

## ■ Model & Suffix Codes

Model	Suffix code	Option code	Description
<b>WE420</b>	.....	.....	Sodium Analyzer
Range	<b>-S</b>	.....	0.30 ppb - 200 ppm or 0.10 ppb - 10 ppm Reagent selection dependent
Housing	<b>-N</b>	.....	Always -N
Type	<b>-AA</b>	.....	General purpose
Spare	<b>-N</b>	.....	Always -N
Language	<b>-E</b>	.....	Always -E

### Reagent and standard solution

The following reagents should be purchased directly from Thermo Fisher Scientific, Inc.

Thermo Fisher Scientific Model code	Description
181073	Reference electrode filling solution, (5) x 2 oz bottles
181113	Sodium electrode etch solution, (1) x 2 oz. bottle
181130	Ammonia Reagent – for 30 days operation, includes (1) x 2 L bottle of ammonia reagent (application specific diffusion tubing not included)
181140	Low Level Sodium Standard Solution Kit – includes (2) x 2 oz bottles of standard 1 (19.1 ppm sodium), (2) x 2 oz bottles of standard 2 (192 ppm sodium) and (1) x 2 oz bottle of sodium electrode etch solution
211190	Diisopropylamine Reagent – for 60 days operation, includes (1) x 0.8 L bottle of DIPA reagent and (1) diffusion tubing assembly (211194)

Please select reagent from Ammonia and Diisopropylamine reagents according to measurement range.

Please always order electrode filling solution, etch solution and standard solution kit.

### Reagent bottle adapter

Use for installation. Please always order a reagent bottle adapter with the main units at same time. Please select according to the selection of reagent.

Part number	Description
K9705CN	Ammonia Application Package – includes ammonia reagent bottle adapter and diffusion tubing (K9705CE)
K9705CP	Diisopropylamine (DIPA) Application Package – includes DIPA reagent bottle adapter and diffusion tubing (K9705CF)

### Maintenance and service part

Part number	Description
K9705CC	Sodium sensing electrode with screw cap
K9705CD	Sodium reference electrode with screw cap, reference electrode filling solution (181073) must be purchased separately
K9705CE	Ammonia Application Diffusion Tubing – includes 3 pieces of 5' 8" thin walled diffusion tubing for use with ammonia reagent
K9705CF	Diffusion tubing assembly for DIPA reagent, 4 inch tubing with O-rings
K9705CM	Diffusion tubing assembly for DIPA reagent, 8 inch tubing with O-rings

## ■ Dimensions

