Dr. Thiedig

Sampling & Analysing Systems

Made in Germany

ANALYSER
Digox 602 *sodium*



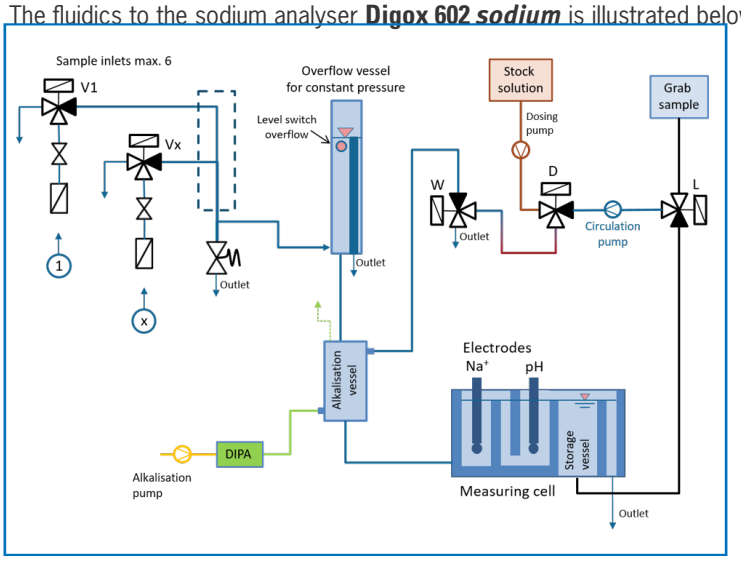
The determination of sodium in low concentrations in the water-steam cycle is of great importance in power plants. On the one hand, this is due to the fact that the significance of sodium in corrosion processes has become more and more recognized over the last few years. On the other hand, this measurement procedure enables a fast monitoring of a leakage for instance in the condenser or the aperture in a cation exchanger or a mixed bed ion exchanger. Not least for that reason, the sodium measurement has become increasingly important with revising the VGB-guidelines
(S-006 / S-010).

The **Digox 602 *sodium*** is an analyser for the continuous measurement of dissolved sodium, even at the level of trace elements, and ideally suited for the operation in the water-steam cycle of power plants, for the control of full demineralisation units, desalination of sea water as well as in the semiconductor industry and electronics industry. The device is able to communicate via both Profibus DP and a binary remote control.

In order to enable a measurement without the influence of hydronium ions, the sample is conditioned to a value of pH 11 +/- 0.02 pH. The pH-value is monitored continuously. The measurement is potentiometrically carried out by means of a special measuring sequence with an Na-sensitive electrode in combination with an Ag/AgCl-reference electrode:

Ag/AgCl(S) – sodium electrolyte – Na^+-sensitive glass membrane - alkalised measuring solution - diaphragm - KCl-electrolyte gel - AgCl(S)/Ag.

The fluidics to the sodium analyser **Digox 602 *sodium*** is illustrated below:



Technical features

- **Very low diisopropylamine consumption (conditioning): typically of 0.5 l/month at 25°C, pH 9**
- **Automatic three-point calibration, adjustable time interval, automatic regeneration of sodium electrode***
- **Individually adjustable measuring duration per channel**
- **Control and monitoring of the adjustable pH value**
- **Usable in the range (unbuffered) of pH 3.5 – 11, option pH 2 - 4**
- **Automatic temperature compensation**
- **Maintenance-free, high-precision dosing loop for stock solution**
- **3/2-way valve per channel for better pre-rinsing of the sample during the waiting time**
- **Efficient, easily replaceable particle filter per channel to avoid contamination in the device**
- **Built-in sequencer for up to 6 sample channels**
- **Additional connection for the measurement of a grab sample**
- **Profibus DP Interface (optional)**

*** The calibration solution lasts for 6 weeks at the recommended calibration of every 72 hours**

TECHNICAL DATA

Digox 602 *sodium*

Device	**Digox 602 *sodium***
Measuring range	0.1 – 9999 ppb sodium | Option pH2: 0.1 – 200 ppb sodium
Measuring principle	Potential measurement of an ion-sensitive Na-electrode against a reference electrode
Display	Graphic display, measuring value for each channel with operating condition
Accuracy	Max. {±2% of reading; ±2 ppb} in the measuring range < 2000 ppb ±5% of reading in the measuring range > 2000 ppb Option pH2: max. {±5% of measured value; ±2 ppb}
Repeatability	Max. {±2% of reading; ±2 ppb} in the measuring range < 2000 ppb ±5% of reading in the measuring range > 2000 ppb Option pH2: max. {±4% of measured value; ±1 ppb}
Calibration	Three-point calibration by threefold standard addition
Reagents	0.5 l stock solution; 1.0 / 2.5 l Diisopropylamine (alkalisation), NH_3 solution (option)
Data interface	Profibus DP (optional)
Binary inputs	6 control inputs for external contacts for channel suppression and remote control
Alarm outputs	Two relays (1x for warnings and 1x for alarms), loading at 250 V AC/3 A, max. 24 V DC/3 A
Operation	Password protection for two levels, entry of threshold values, communication parameters and measuring cycles
Analog outputs	Up to 6 analog outputs 4…20 mA ±<0.025 mA, max. load resistance 500 Ω; Max. 2 analogue outputs, if Profibus interface is installed
Response time	180 seconds (95%) < 2000 ppb 600 seconds (95%) > 2000 ppb
Ambient temperature	5 – 45°C, storage and transport 0 – 50°C, relative humidity 10 – 95%, non-condensing
Sample conditioning	10 – 40°C, 5 – 10 l/h, 0.3 – 5.0 bar, pH 3.5 – 11 (unbuffered), optional pH 2 - 4
Sample connections	1 – 6 input channels with overflow valve, additional grab sample
Power supply	100 – 240 VAC 50/60Hz, < 45 VA, battery-free parameter storage; No data loss after power failure; Option 24 Volt Version: 23.75 – 24.25 VDC
Standard conformity	CE and CB-compliant according to EN 61010-1 / EN 61326-1 / EN 61326-2-3 / EN 50581
Protective system	IP 65
Weight	Max. 23 kg, without alkalising reagent
Dimensions	850 x 450 x 200 mm (HxWxD)

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Subject to technical alterations.

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