

AQUACON RH/RH-S

Process analyzers for residual water hardness

The process analyzers AQUACON RH and AQUACON RH-S are suitable for the automatic measurement and control of residual hardness in boiler water and boiler feed water. Measurement principle is a complexometric titration of the water hardness with one combination reagent (RH) or with two reagents (RH-S) which include a buffering solution, the titrant solution and a hardness specific indicator. A photodetection system determines the titration end point (color change from red to blue). The result is displayed on the touchscreen as ppm CaCO_3 or $^\circ\text{dH}$ (RH) or as $\mu\text{mol/l}$ alkaline earth ions. Main application for the analyzers is the monitoring and control of de-hardening plants and the supervision of salt-less water.

The analyzers consist of a control unit with touchscreen and an analysis unit with measuring chamber, valve, dosing pump (incl. stepper motor) and all required tube connections. The control unit includes a microprocessor which controls the automatic measurement incl. sampling, rinsing, titration and surveillance of the photodetection system. The analysis results can be used for the monitoring and control of a supervised process.

Your advantages:

- ⇒ Automatic measurement incl. self test and drift compensation
- ⇒ Low Measurement ranges
RH: 0,5–9,0 ppm CaCO_3 or 0,02–0,50 $^\circ\text{dH}$
RH-S: 1,0 – 10,0 $\mu\text{mol/l}$ alkaline earth ions
- ⇒ Easy operation via touchscreen
- ⇒ Adjustable limit value and alarm value
- ⇒ Programmable analog output (0/4-20 mA)
- ⇒ External start/stop of an analysis possible
- ⇒ No external calibration required.
- ⇒ Multi range power supply for variable use.
- ⇒ Including two-part polycarbonate wall cabinet
- ⇒ Optional for RH: second dosing pump for buffering solution to prevent interferences



Order informations:

AQUACON RH
Option second pump for AQUACON RH
Combination reagent RH-B2300 (500 ml)

Order No. 693 2705 01
Order No. 125 0011 01
Order No. 101 2705 01

AQUACON RH-S
Titration reagent RH-B1000 (500 ml)
Indicator reagent RH-IND (250 ml)

Order No. 693 2702 02
Order No. 101 2702 01
Order No. 101 2702 03

Technical Data

Current output	0/4 - 20 mA, max. load 500 ohm
Display	240 x 128 dots, touchscreen
Relay	1 x Alarm, potential-free 230 V/50 Hz, 3A 1 x Limit, potential-free 230 V/50 Hz, 3A 1 x Analysis state, potential-free 230 V/50 Hz, 3A
External Switching	potential-free contact, 18 V DC, ca. 4 mA
Power Supply	110 - 230 V -- 50/ 60 Hz
Power Consumption	approx. 16 VA
Dimensions	640 x 315 x 190 mm (H x W x D)
Protection	IP 65 (transmitter housing)
Connections	Plugs with circular connection 1,5 mm ²
Temperature	5° to 45°C, at consumption of reagents within 6 months

Since it is company policy to continuously improve its product range, we reserve the right to make changes in the product design without notification to its users.

Specifications

Parameter	Residual Hardness	
Description	Microprocessor-controlled analyzers for the determination of residual hardness in water	
Typical Applications	Monitoring and control of water treatment, water blending and potable water plants, supervision of salt-less water	
Analysis Method	Complexiometric titration of the total hardness using a combination reagent (RH) or two single reagents (titration reagent and indicator reagent)	
Type	AQUACON RH	AQUACON RH-S
Measuring Range	0,5 – 9,0 ppm	1,0 – 10 µmol/l
Resolution	0,2 ppm	0,1 µmol/l
Accuracy	5 % of end value	5 % of end value
Reproducibility	3 % of end value	3 % of end value
Zero-point Stability	automatic adjustment	automatic adjustment
Number of Samples	1	1
Sample	Operating Pressure 0,1 - 10 bar Temperature 5 - 30 °C Sample Volume 25 ml per analysis (excluding rinsing) Sample Condition clear, with particles < 0.5 g/l ; < 50 µm Chemical Demands pH 4 - 10, Fe < 3 ppm, Cu < 0,2 ppm, CO ₃ ²⁻ < 10 mmol/l absence of Mn- /Al-salts, HCO ₃ ¹⁻ / CO ₃ ²⁻ < 1 mmol/l (only RH-S) Drain pressure free into open drain	
Reagents	1 5 – 20 °C hardness dependent 500 ml appr. 2300 analysis at 1,8 ppm	2 5 – 20 °C hardness dependent 500 ml / 250 ml appr. 250 analysis at 5 µmol/l
Analysis	Cycle (approx.) 6 - 13 min., incl. rinsing Sample interval 1 – 99 min or external start/stop Optional 2 nd pump (for buffering solution, only RH)	