


Boiler Leak Detection and Ion Exchange Resin Monitoring at Power Station

Industry: Power

Product: Conductivity analyzers

Introduction

Seawater leak detection is one of the post-condensation water quality management processes that are performed for power station boilers and similar facilities. Damage to the ion exchange resin, which deionizes the supplied water, is also monitored during this process, and both of these applications are executed by a conductivity analyzer.

In the measurement point  shown in the figure below, two different signal ranges are needed for deionized water management and seawater leak detection. The SC450G can simultaneously generate output signals for two different

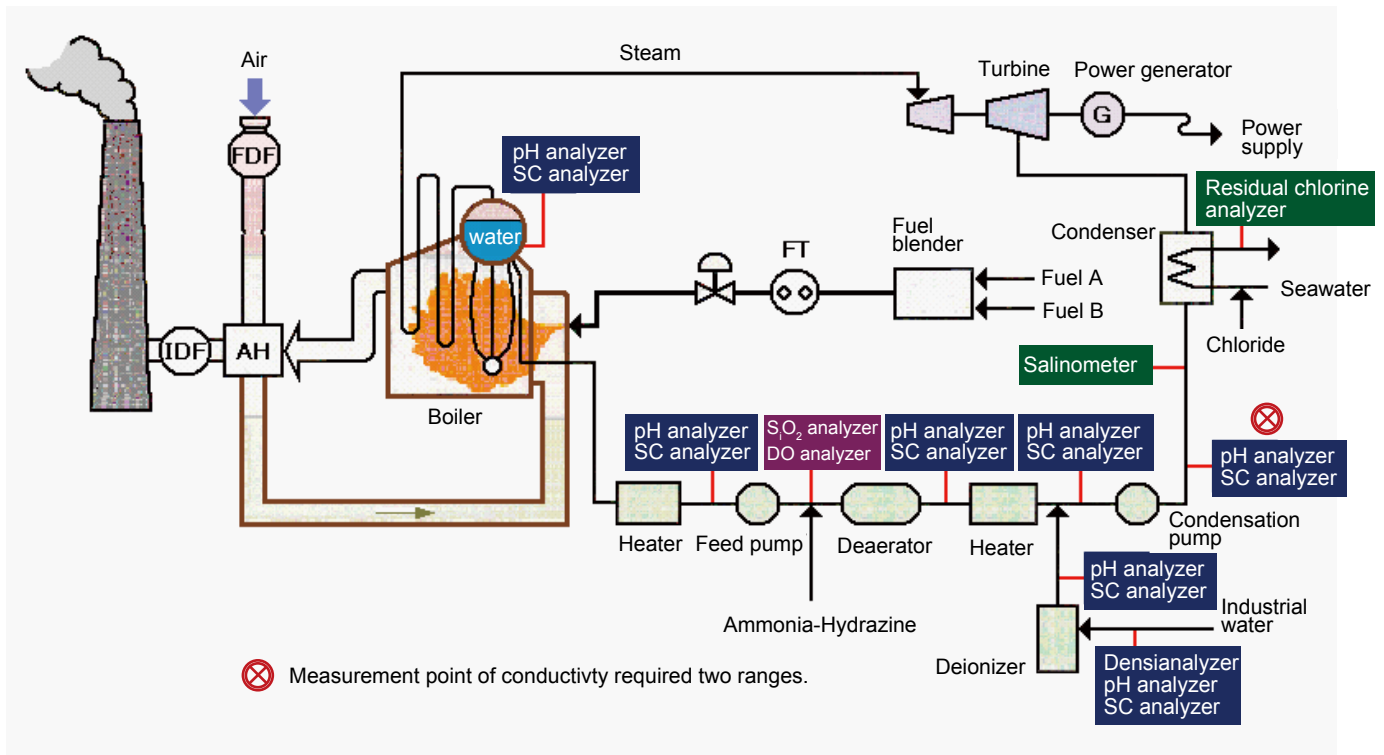
ranges, meaning that a single unit can perform deionized water management concurrently with seawater leak detection. Other applications for this conductivity analyzer include the management of deionized boiler water.

Expected Benefits

- Detects seawater leakage and ion exchange resin damage
- Reduces operating costs

Process Overview

The following illustration shows where analyzers are used in the boiler water quality management process.



Solution Details

Measurement system

4-wire conductivity system

Converter

SC450G-A-□

Sensor

SC4A(J)-S-AD-09-002-□□-T1/PS

General Specifications

SC450G 4-wire Conductivity Converter

Measuring range (at process temperature; C: cell constant)

[Conductivity]

Minimum: 0 $\mu\text{S}/\text{cm}$

Maximum: 200 mS x C (overrange: 1999 mS/cm)

[Resistivity]

Minimum: 0.005 k Ω /C

Maximum: 999 M Ω -cm

[Temperature] Pt1000: -20 to +250°C

Output setting range

[Conductivity] Minimum: 0.010 $\mu\text{S}/\text{cm}$

Maximum: 1999 mS/cm

[Resistivity] Minimum: 0.001 k Ω -cm

Maximum: 999 M Ω -cm

[Temperature] Min. span: 25°C; Max. span: 250°C

Output signal: two outputs of 4 - 20 mA DC

Construction: for outdoor installation, IP66, NEMA 4X waterproof

Ambient operating temperature: -20 to +55°C

Power supply voltage: 90 to 264 V AC, 50/60 Hz

Power consumption: 15 VA maximum

SC4A(J) Conductivity Sensor

Electrode system: two-electrode system

Cell constant: 0.02 cm^{-1}

Measuring range: 0 - 0.5 $\mu\text{S}/\text{cm}$ to 0 - 200 $\mu\text{S}/\text{cm}$

Temperature range: 0 - 110°C

Wetted material: SUS316L, PEEK (polyether ether ketone)

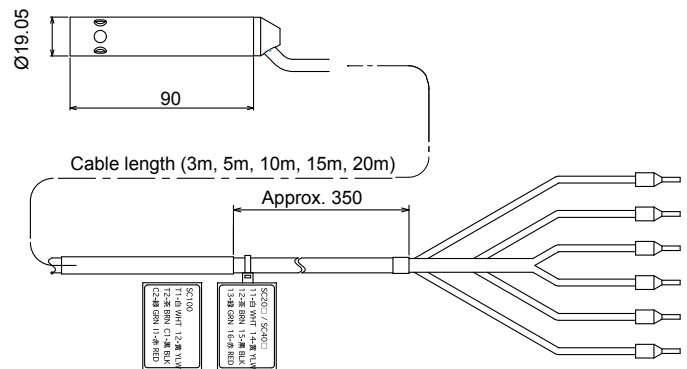
/PS Adapter (option code of SC4A(J))

Material: SUS316L

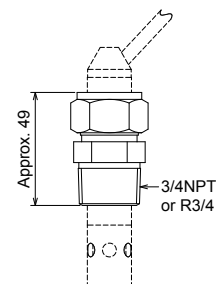
Operating pressure: 1 MPa maximum (depends on the SC4A(J) Sensor)



SC450G 4-wire Conductivity Converter



SC4A(J)-S-AD-09-002 Conductivity Sensor



3/4NPT when /PS or /PF specified
R3/4 when /RS or /RF specified

/PS Adapter (screw-in type)

