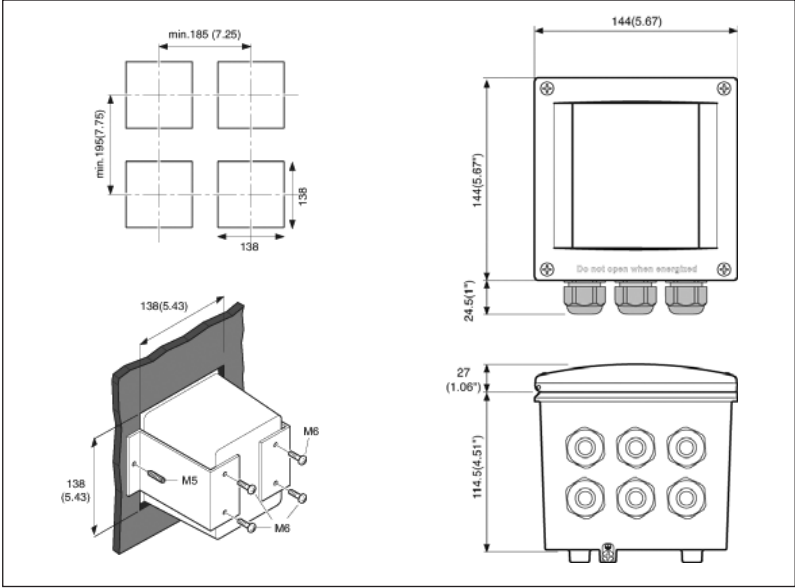


Dimensions



Model and Suffix Codes

Model	Suffix	Option	Description
PH450G			4-wire pH/ORP Analyzer
SC450G			4-wire Conductivity/Resistivity Analyzer
ISC450G			4-wire Inductive Conductivity Analyzer
Power Supply	- A		AC Version (85-365VAC)
	- D		DC Version (9.6-30VDC)
	- A		Always A
		/SCT	Predefined tagnumber (text)
		/UM	Universal Mounting (= /U and /PM together)
		/Q	Quality and Calibration certificate as standard

A Yokogawa Commitment to Industry

vigilance®



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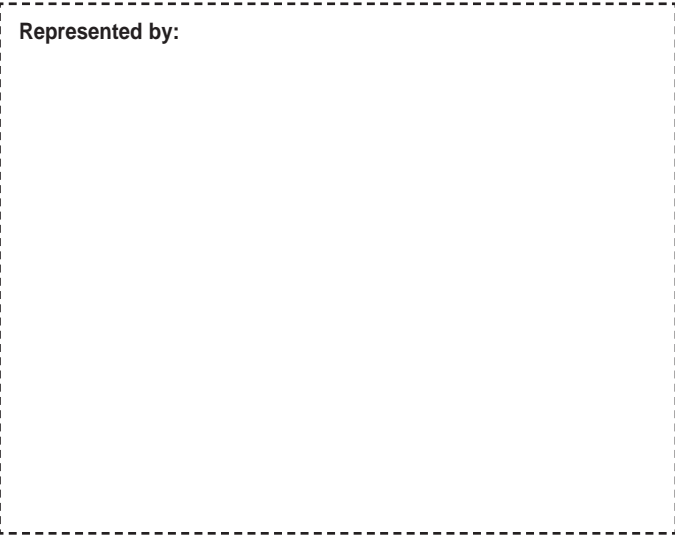
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What does **vigilance®** mean to Yokogawa? For starters, always, always making sure the products and solutions that leave our research and development labs are the best the world has seen - from day one throughout your business life cycle. Our innovative technologies and committed experts help design, install and manage your production systems efficiently and dynamically. In an ever-changing business environment, we help plan for the future to ensure continuity and flexibility in your automation strategies. Yokogawa goes the extra mile to do things right. Let us be vigilant about your business.

Represented by:



The Next Evolution in Liquid Analyzers

EXAxt 450



EXAxt 450

- PH450 pH/ORP Analyzer
- SC450 Conductivity/Resistivity Analyzer
- ISC450 Inductive Conductivity/Concentration Analyzer

Bulletin No. BU12A01B05-E-A

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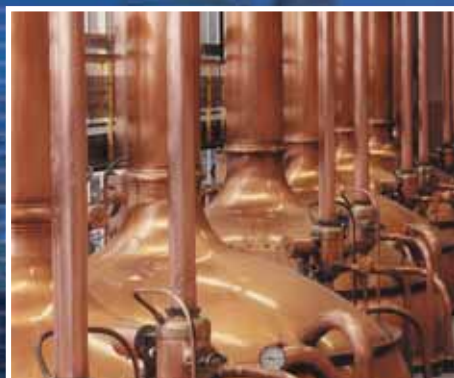


PHARMACEUTICAL

The pharmaceutical industry demands high product reliability and stability. Any drift in the electrochemical analysis may adversely affect the quality of the final product. Therefore, accurate and traceable calibration of the electrochemical sensors and instruments is mandatory.

The combination of Yokogawa instrumentation and Yokogawa/Hamilton sensors meet the stringent expectations of this industry.

All Conductivity analyzers also meet the requirements specified in USP<645> first issued with USP23.



BREWERY

In modern breweries the repeatability of the product (taste) is the most important characteristic of quality. Strict process control is mandatory to assure constant quality.

Protection against contamination by microorganisms that can affect taste is a major concern in the Biotechnological process. This results in the requirement for in-line cleaning and well-controlled CIP processes. Good CIP (Cleaning in Place) provides both effective cleaning with cost effective use of chemicals.

The EXAxt 450 series meets all the electrochemical analysis requirements for this industry.

Model ISC450 Inductive Conductivity Analyzer

The new EXAxt ISC450 is designed to meet the exacting requirements of today's process industry.

The Model 450's unique Human Machine Interface (HMI) provides intuitive operation for obtaining diagnostics, trends, logbooks and step by step calibration routines.

The analyzer is so simple and straight-forward to set up, requiring minimal use of the instruction manual.



ISC40 Inductive Conductivity sensors & fittings

Features:

- Preloaded calibration methods according to OIML* recommendations
- Preloaded matrices for most common electrolytes
- Accuracy of 0.5% plus 1 $\mu\text{S}/\text{cm}$ from 0 to 2000 mS/cm with one cell constant
- Two ranges with two temperature compensation methods can be used for different fluids measured with the same sensor.

* Organization International de Materologie Legale

ACCURACY

- Yokogawa uses smart preamplifiers with self-tuning capabilities to assure high accuracies at every point of the range
- Accuracy is in engineering units or percent of measured value rather than the traditional percent full-scale specifications

DIAGNOSTICS

- EXAxt 450 features self-diagnostics. The watchdog timer checks continuously the integrity of the signal processing and firmware routines
- The Model 450 monitors the sensors in-line to prevent process control problems should sensor failure or fouling occur.

INSTRUCTIONS

- The EXAxt 450 software interface minimizes the need to use the Instruction Manual
- All information about configuration, calibration, and troubleshooting is displayed in plain English
- In addition to English, the user can choose German, French, Italian or Spanish

MAINTENANCE

- Model 450 maintenance is quick and simple using the on-board instructions and touchscreen operation
- Capable of predicting the need for maintenance or calibration to allow scheduled maintenance which minimizes downtime from unexpected failures
- EXAxt stores the results of the last five calibrations to predict when sensor drift exceeds selected limits

FUNCTIONALITY

- EXAxt 450 includes two current outputs to transmit process variables or used for control outputs
- The graphical LCD displays up to three dynamic variables and trend graph of the primary variable
- The four SPDT contacts can be configured as HI/LO contact outputs, or as control outputs to solenoids or metering pumps
- The output can be pulse length or pulse frequency controlled using the PID control function

HARDWARE

- The electronics are housed in a rugged cast Aluminum housing.
- The environmental protection meets IP66/ NEMA4X
- Access to the spacious wiring compartment is easy through the hinged front door
- Touchscreen Display are well protected by the polycarbonate flexible window
- The unit is ideally suited for Field and Panel mounting

COMMUNICATIONS

- All dynamic variables are transmitted v/a HART to a hand held the HOST computer or any PC
- Analyzer settings can be downloaded or uploaded using the EXAxt PC Configurator, available free of charge through Internet

OPEN ARCHITECTURE

- Analyzers are compatible with all Yokogawa sensors and most commercially available sensors
- For example up to 6 different temperature compensation elements are supported by the Model 450

COMPENSATION

- EXAxt 450 delivers accurate compensation of critical variables assuring accurate process control

Examples

- Temperature Compensation for pH or conductivity values: NEN6411 for strong electrolytes; MATRIX or TC for other applications
- Compensation of non-linearity on concentration measurements
- Matrix compensation of temperature for Conductivity measurement

THE NEW EXAxt 450 SERIES

- **Real-time trend graph** assists in sensor diagnostics
- **Sensor performance life calculation**
- **Intuitive touch screen (HMI)**

The EXAxt 450 Series analyzer is another fine example of Yokogawa raising the benchmarks of innovation and quality. Yokogawa has refined its expertise in pH and conductivity measurement and control into this new and innovative product. It is packed with features designed to reduce commissioning time, minimize plant down time and simplify operation and maintenance. It's intuitive touch screen operation, presents process parameters and the advanced diagnostics in a clear and unambiguous way.

The intuitive touch screen virtually eliminates the need for an instruction manual.

The trend graph helps diagnose problems and view sensor performance over time.



Its intuitive touch screen

The Model 450 provides process parameters and advanced diagnostics in a clear, unambiguous way. Unique data processing methods provide on-line monitoring, trending, logging of process events, and control capabilities allowing rapid intervention when changes in the process dynamics occur.



Model PH450 pH and Redox (ORP) analyzer

The PH450 provides the highest accuracy in the industry by combining advanced temperature compensation, preloaded calibration standards and stability checks and true on-line diagnostics.

The PH450 measures pH and/or ORP (Redox) and Temperature. All these parameters can be monitored through the output functions: two mA current outputs, four independent SPDT contact outputs and HART.

Features:

- Advanced Temperature compensation methods include NEN6411 algorithm for ultra pure water analysis
- Three preloaded sets of buffer tables cover most commonly used pH calibration practices
- Capable of analyzing pH, ORP and Temperature measurements at the same time with the same sensor
- Full PID control possible for both acid and alkaline addition simultaneously
- Supports many temperature compensation elements and sensor types



Single and combination pH / ORP electrodes

Features of the EXAxt Series:

- Touchscreen operation
- Unique intuitive HMI menu structure in 5 languages
- Intelligent step by step calibration routines
- Unique problem solving guidance
- Predefined buffer solutions
- Various temperature compensation algorithms
- Full P, PI, PID control on all outputs
- Two mA-outputs and four SPDT relay contacts with display indicators
- HART® Communications
- Process data trending up to 2 weeks
- Extensive logbooks for event storage

POWER GENERATION

Regardless on how electricity is generated: water quality is essential.

EXAxt 450 is especially suitable for this industry by the dedicated functionality. PH450 offers NEN6411 Temperature compensation methods for accurate pH analysis of the boiler feed water, the condensate and the steam quality. SC450 offers Cation, Morpholine and Ammonia temperature compensation functions for accurate Conductivity measurement of all water streams in the water-steam circuitry.

ISC450 offers wide rangeability and highest accuracy when coupled with the ISC450 sensor. Naturally dedicated algorithms for concentration control of the regeneration chemicals are standard. The efficient use of regeneration chemicals and rinsing water requires the accuracy offered by these analyzers.



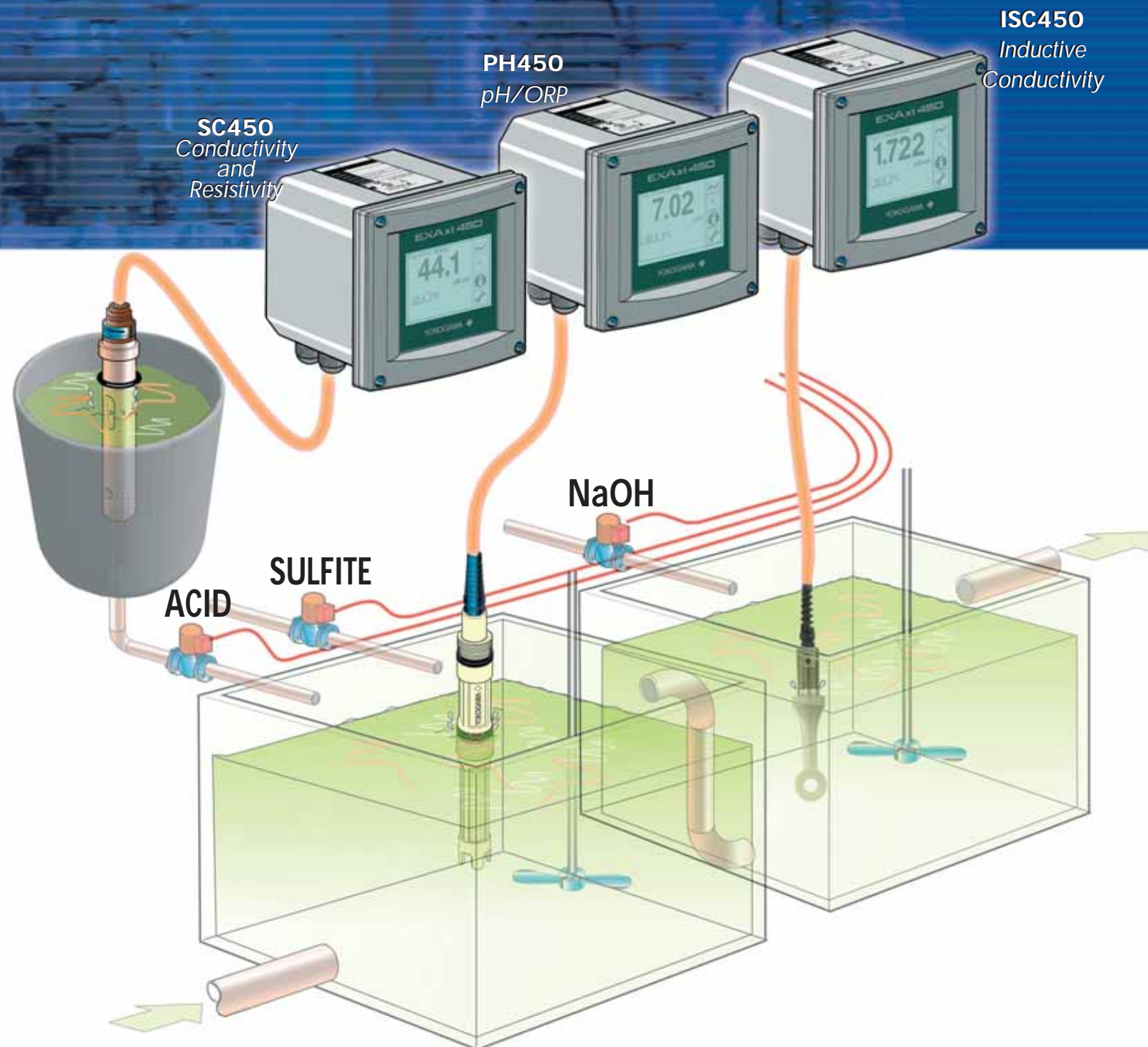
PULP AND PAPER

The Pulp and Paper industry requires hassle free measurements. Analyzers must be able to operate trouble free for extended periods in this rough environment with a minimum of maintenance.

The PH450's flexibility with a wide variety of sensors is especially suitable for the many pH and ORP control loops in the pulp and paper processing.

SC450 is the best assurance for reliable monitoring of the condensate lines to protect the steam boilers.

ISC450 is the ideal instrument to monitor the many effluent streams and the concentration control of the various chemical streams.



Model SC450 Conductivity / Resistivity Analyzer

The EXAxt SC450 combines the superior functionality of the Yokogawa EXA series with the ease of operation similar to pocket computers (PDA) utilizing the unique Human Machine Interface. The high resolution graphical display and touch screen operation make all information visible to the operator.

Configuration with the touch screen is as easy as operating a PDA. Simply choose the language and on screen instructions allows simple set-up of the best configuration for the application.

Features:

- Supports 2-electrode and 4-electrode sensor styles
- Auto compensation for cable resistance for 4-electrode sensors
- Cell condition monitoring eliminates risk of errors by cell fouling
- Advanced temperature compensation techniques for all pure water applications and concentration measurements in standard units
- USP<645> function present for all configurations including resistivity mode
- 0.5% of reading accuracy over the full range of 6 decades

