Please refer to page 7 for selection details

Water
Quality Analysis

Hardness Analyzer
HA

Overview

The instrument consists of signal measurement, operation, display, and panel instructions. This instrument utilizes a PVC sensitive membrane calcium ion selective electrode with organic phosphate salt as the active material, which is used to measure the concentration of Ca2+ions in a solution. The instrument calculates the concentration of Ca2+ions through the collection and analysis of current signals, making it highly selective, requires no replacement parts, and requires minimal maintenance; Long electrode lifespan; Characteristics of high reliability.

Application

Widely used in industrial manufacturing and mechanical processing, material research and quality control, construction and building materials industry, electronics and semiconductor industry, medical equipment and food contact materials, aerospace and military industry, geological exploration and mining, cultural relics protection and other industries.

Function Characteristics

Intelligence: Using a single-chip microprocessor to complete hardness value measurement, temperature measurement, and compensation;

Double high impedance preamplifier: high input impedance, anti noise, strong anti-interference ability;

There are three calibration methods: two-point calibration, three-point calibration, and known concentration calibration;

Human computer dialogue: The menu operation is simple, and users can operate it by following the prompts on the screen;

Multi parameter display on the same screen: simultaneously display hardness value, temperature value, and working status;

Software setting output mode: 4-20mA output parameter type;

The measurement range and alarm upper and lower limits can be freely set; Alarm prompt for upper and lower limit exceeding limits;

Three sets of relay control switches, with adjustable hysteresis control range;

Self cleaning switch setting, setting cleaning time and interval;

Data storage, running logs, and printing functions;

After sales service: Provide technical support and contact information for after-sales service to users;

Maintenance is very simple, it is recommended to calibrate once a month;

Adopting multiple calibration methods to ensure measurement accuracy;

Chinese and English menus are optional.

Product Model

Product Model	HA-S1	HA-S2
Product Image		
Display	4.3-inch LCD color screen	3.2-inch LCD screen
Measurement Range	0～2000mg/L（ppm）	0～2000mg/L（ppm）
Basic Error	±3%F.S	±3%F.S
Resolution	0.01mg/L	0.01mg/L
Automatic Or Manual Temperature Compensation rangerange	-10～110℃	-10～110℃
Stability	At room temperature, monthly drift<2% F.S	At room temperature, monthly drift<2% F.S
Signal Output	Two 4-20mA channels, one RS485 channel (supporting Modbus protocol), printer (optional)	Two 4-20mA channels and one RS485 channel (supporting Modbus protocol)
Relay	Three sets of relay control contacts	Three sets of relay control contacts
Power Supply	220VAC ± 10%, 50 ± 1Hz, power ≤ W; 24VDC, power ≤ 1W (to be reserved); 12VDC， Power ≤ 1W	220VAC ± 10%, 50 ± 1Hz, power ≤ W; 24VDC, power ≤ 1W (to be reserved); 12VDC， Power ≤ 1W
Overall Dimensions	180x157x84.5mm	96x96x125mm
Installation Opening	Disk mounted 138x138mm (wall mounted)	Disk mounted 92x92mm
Instrument Material	Host material ABS	Host material ABS
Working Environment	Environmental temperature: -10~60 ℃; Relative humidity: not exceeding 90%;	Environmental temperature: -10~60 ℃; Relative humidity: not exceeding 90%;
Data Function	Supports data collection, wireless transmission, and micro printers	-

Hardness Analyzer Electrode Series

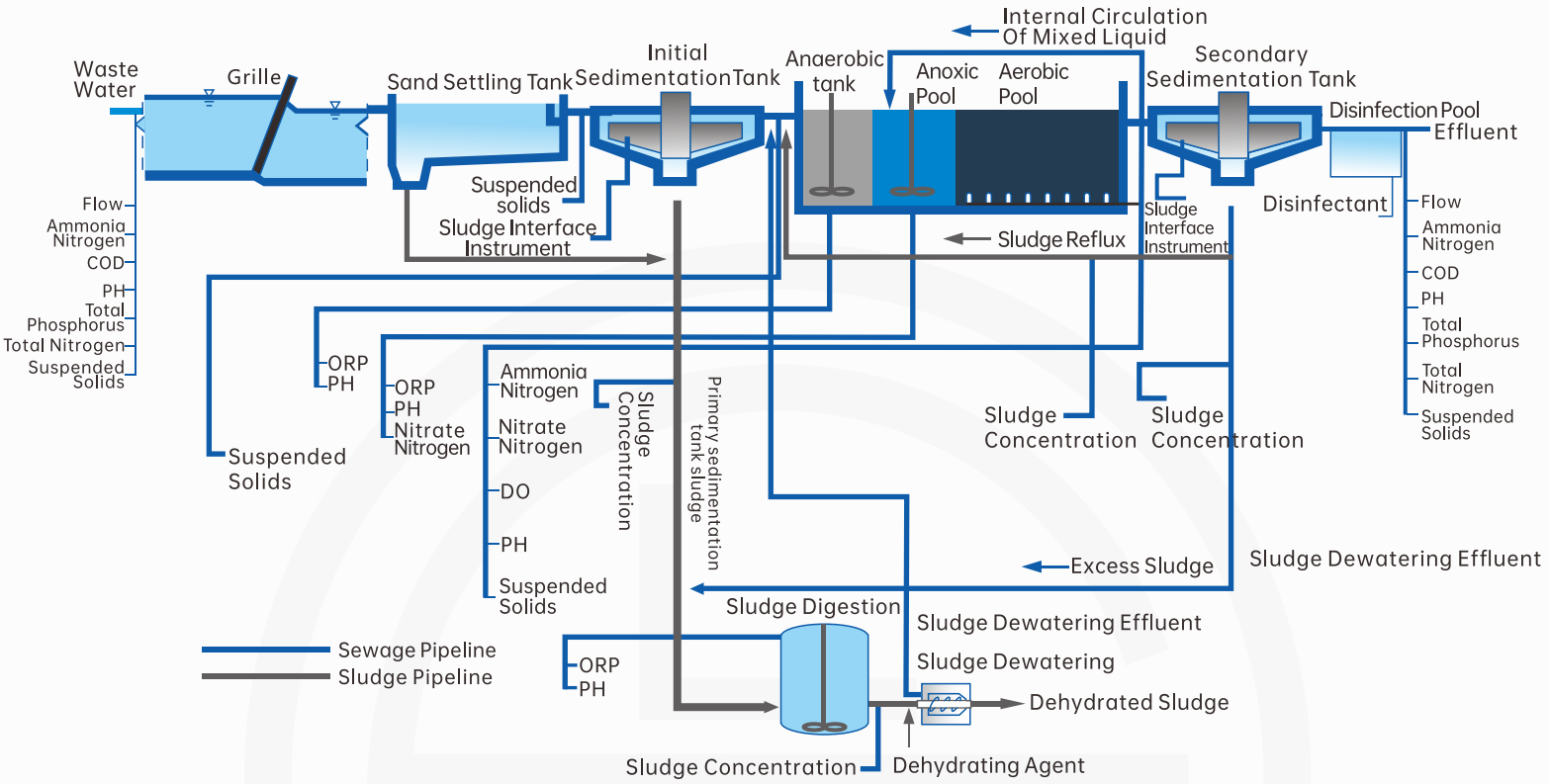
Structural Features:

The instrument consists of signal measurement, operation, display, and panel instructions. This instrument utilizes a PVC sensitive membrane calcium ion selective electrode with organic phosphate salt as the active material, which is used to measure the concentration of Ca2+ions in a solution.

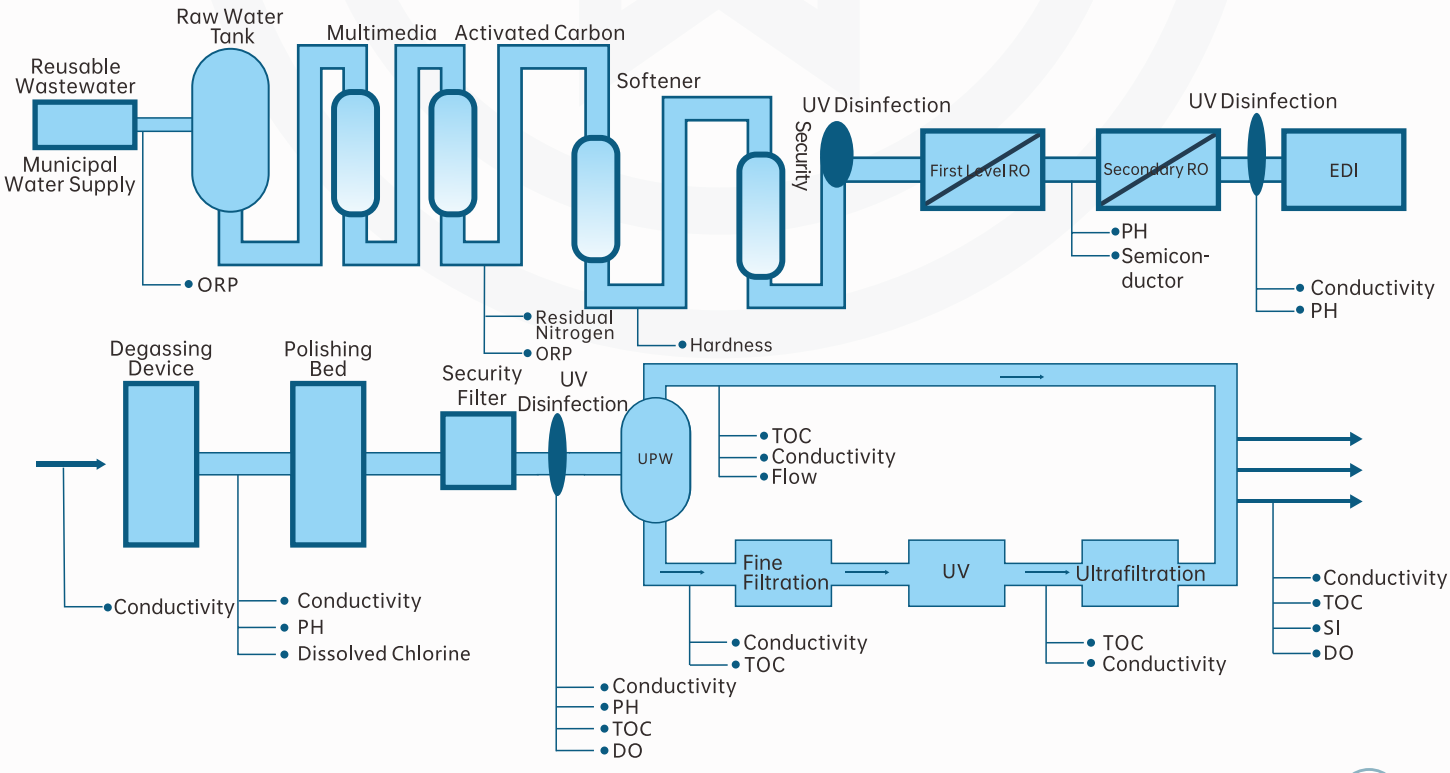
Product Model

Product Model	D1 measuring electrode
Product Image	
Testing Scope	Scalable from 0 to 100mg/L (ppm)
Temperature Range	0~60℃
Resolution	0.001mg/L
Basic Error	±5%F.S
Stability	At room temperature, monthly drift<2% F.S
Output	RS485
Thread	3/4NPT
Electrode Type	Ionic membrane method
Electrode Material	ABS
Line Length	10m

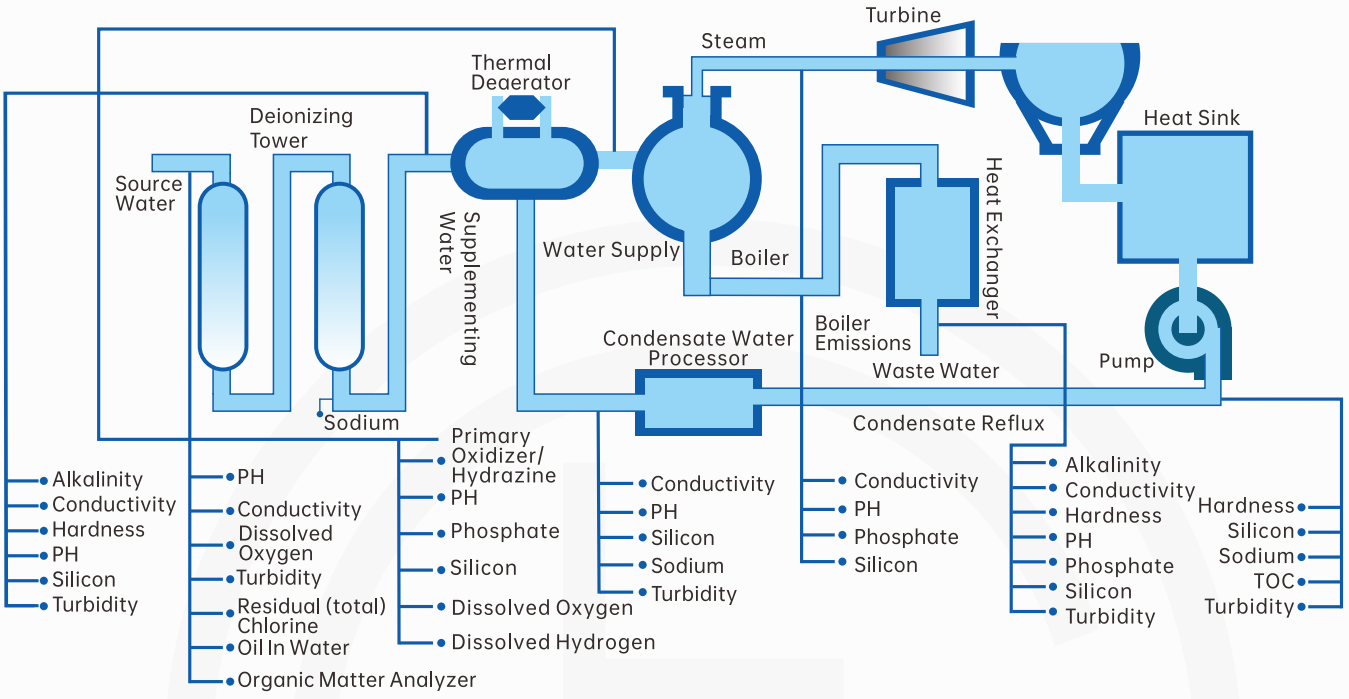
Sewage Treatment Process Diagram



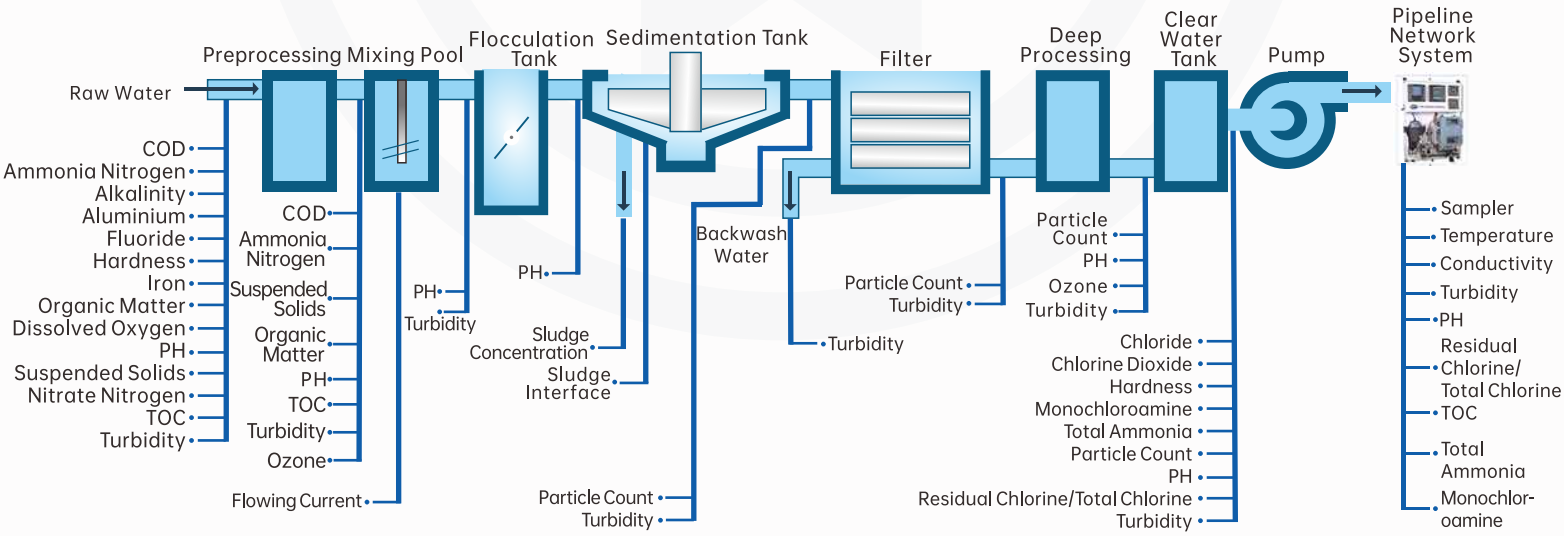
Electronic Industry Water/Wastewater Reuse Process and Water Quality Monitoring Plan



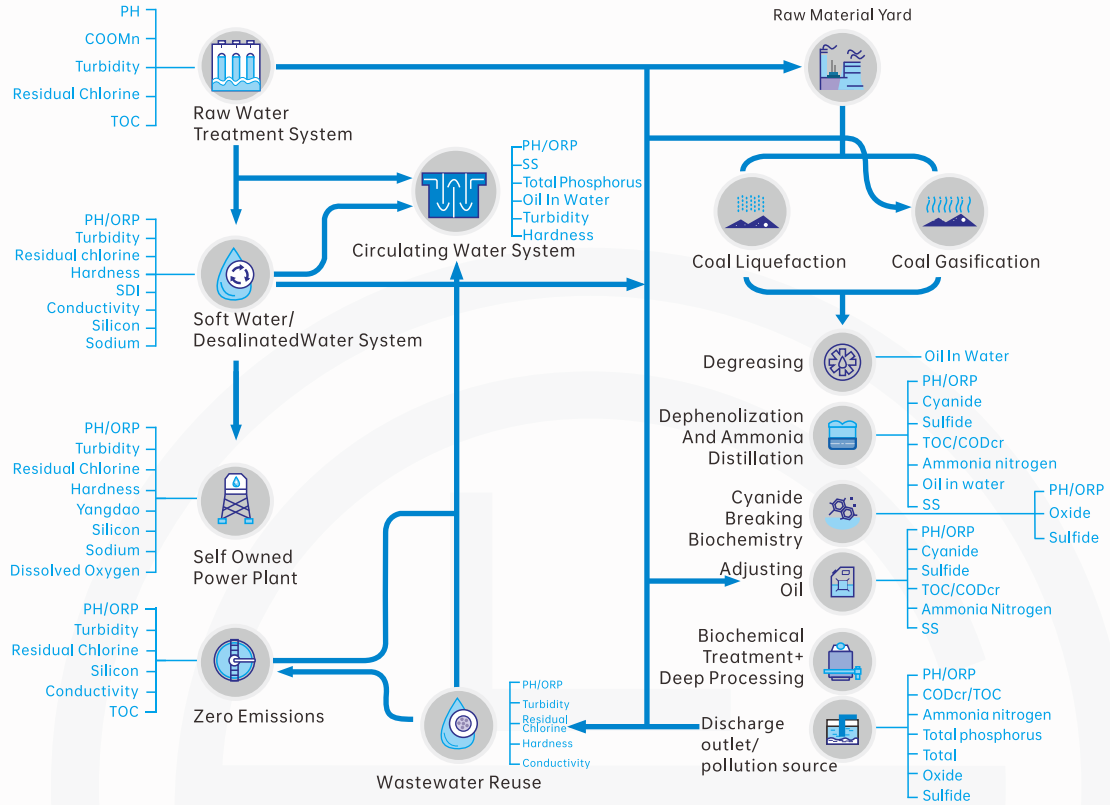
Boiler Water Flow Diagram



Drinking Water Treatment Process Diagram

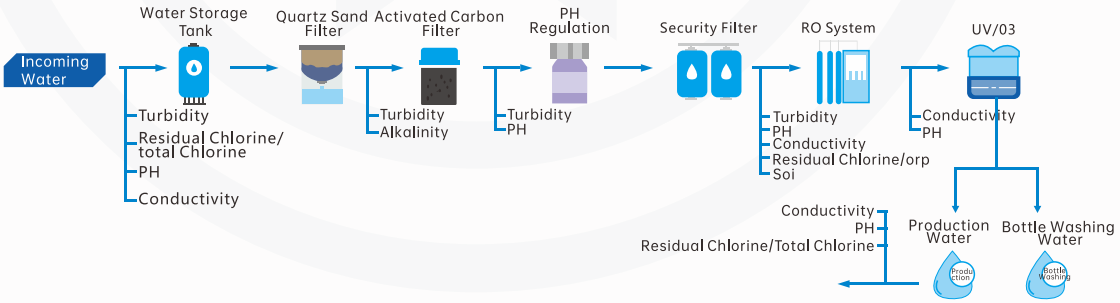


Petrochemical Environmental Water Treatment Process Diagram

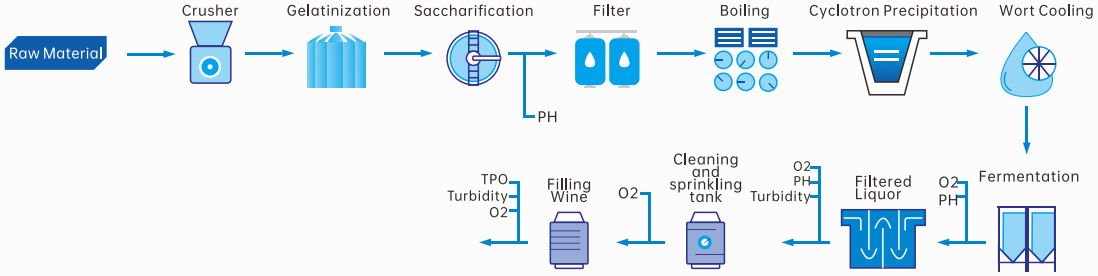


Wastewater Treatment Process And Water Quality Monitoring Plan For The Beer And Beverage Industry

Process Flow Of Beer Beverage Raw Water Pretreatment



Beer Water Usage Process



Selection and composition of hardness analyzer

Example Of Selection HA-

S1	D1	N	V	A	N	S	F	H	L
Required 1	Required 2	1	2	3	4	5	6	7	8

Transmitter Specifications (required)	S1	4.3-inch LCD color screen						
	S2	3.2-inch LCD screen						
	N1	No need for transmitter, only electrodes are optional						
Electrode Model (required)	D1	Hardness measurement electrode						
	T( )	Other electrodes						
1. Measurement Range	N	0~100mg/L						
	O	0~1000mg/L						
	P	0~2000mg/L						
	T( )	Other measurement ranges						
2. Resolution	V	0.001						
	U	0.01						
	T( )	Other resolutions						
3. Output Signal	A	4-20mA						
	B	4-20mA+RS485						
	C	4-20mA+RS232						
	D	Other output signals						
4. Material	N	ABS						
	T( )	Other materials						
5. Power Supply	S	24VDC						
	V	220VAC						
6. Protection Level	E	IP65						
	F	IP68						
	T( )	Other protection levels						
7. Cable Length	H	10m						
	I	5m						
	G	15m						
	T( )	Other lengths						
8. Install Interface	L	3/4NPT						
	T( )	Other installation interfaces						

Explanation:

The hardness analyzer adopts a 4.3-inch LCD color screen and is equipped with hardness measurement electrodes. The range is 0~100mg/L, the resolution is 0.001mg/L, the output signal is 4~20mA, the material is ABS, the power supply is 24VDC, the protection level is IP68, the cable length is 10m, and the installation interface is 3/4NPT.

Product Certification

Compliance and approval; The Ludwig water quality analyzer meets key standards and certifications for process measurement technology; To ensure the highest reliability in such settings;

Ludwig China Representative Office
Ludwig Automation Instrument (Guangzhou) Co., Ltd | Ludwig International Trade (Shanghai) Co., Ltd
LUDWIG More product information is available www.ludwig-schneider.com.cn
✆ 400-860-9760 ✉ lw@ludwig-schneider.com.cn
LUDWIG INSTRUMENT