



Recorder



Flow



Pressure



Temp



Analyzer



Level

Datasheet

Membrane-Coated Amperometric Sensor

SUP-ADC1100

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Datasheet**Digital Membrane Sensor for Disinfectant Measurement
SUP-ADC1100**

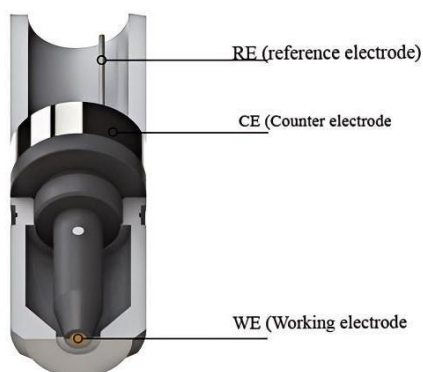
The digital membrane-coated amperometric sensor is a three-electrode, constant-potentiostatic, current-measuring device designed for measuring the disinfectant concentrations such as residual chlorine, chlorine dioxide, ozone, and total chlorine. It is primarily used in applications such as tap water outlets, pipe networks, secondary water supply systems, water supply terminals, and swimming pools. Featuring a built-in ARM processor and advanced filtering algorithms, the electrode effectively minimizes noise interference. It also provides an RS485 interface for seamless access to computers and network monitoring systems.

Features

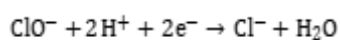
- No reagents consumption and pollutant on the Electrochemical sensors do not consume reagents or emit pollutants .
- The membrane-coated design helps prevent contamination and degradation of the working electrode.
- The three-electrode design ensures high zero-point stability and high sensitivity .
- The built-in high-precision sampling circuit provides excellent sensor linearity.
- The sensor delivers measurement results consistent with the DPD (N, N-diethyl-p-phenylenediamine) method.

**Amperometric Sensor****Principle**

The membrane-coated digital disinfectant electrode is a three-electrode measurement system with a high-purity gold electrode as the working electrode. The build-in high-precision constant potentiostat keeps the potential of the working electrode stable. Disinfectant components such as hypochlorous acid undergo redox reactions at the working electrode, and the current generated follows Faraday's law, thereby measuring the disinfectant concentration.

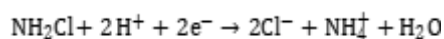


Free chlorine (Formula 1):

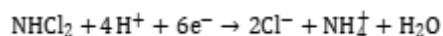


Total chlorine: Total chlorine includes free chlorine and combined chlorine (such as ammonia, NH_2Cl , NHCl_2 , etc.). Combined chlorine also undergoes redox reaction on the working electrode:

Formula 2



Formula 3



Parameters		
Categories	Parameters	Description
System	Power supply	(9 ~ 28) V DC
	Power consumption	≤0.5W
	Measurement parameters	Residual chlorine, chlorine dioxide, ozone, total chlorine, temperature
	Communication interface	RS485 interface + (4 ~ 20) mA output
	Water sample flow rate	>400mL/min, and the flow rate needs to be kept stable
	Operating temperature	(-5~45) °C (no freezing)
	Pressure resistance	< 0.1MPa
	Protection level	IP68
Disinfectants (residual chlorine/chlorine dioxide/ozone/total chlorine)	Measurement method	Reagent-free, electrochemical, three-electrode amperometry system
	Range	(0~5) mg/L; (0~20) mg/L
	Resolution	0.001mg/L

Categories	Parameters	Description
	Detection limit	0.030 mg/L or lower
	Accuracy	±3% (DPD comparison error ±10% or ±0.05mg/L, whichever is greater)
	Repeatability	±3%
	Response time	T ₉₀ ≤ 90 seconds
	Calibration method	One-point or two-point calibration
	Sample pH range	4~9
Temperature	Measurement method	Thermistor method
	Range	(-5~60)°C
	Resolution	0.1°C
	Accuracy	±0.4°C
	Repeatability	0.2°C
	Response time	T ₉₀ ≤ 25 seconds
	Calibration method	Single-point calibration

Wiring

Note: Please carefully follow the instructions to connect the electrodes, otherwise the electrodes may be damaged.

Models with the (4-20)mA (if selected) output are supplied with a 6-core cable, while those without (4-20)mA option adopt 4-core cable. The electrode wiring definitions are shown in the figure below:

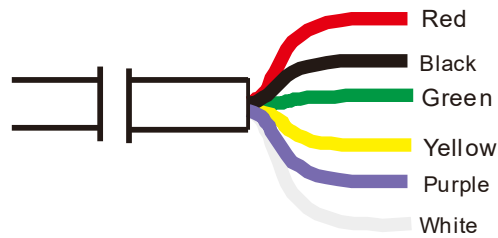
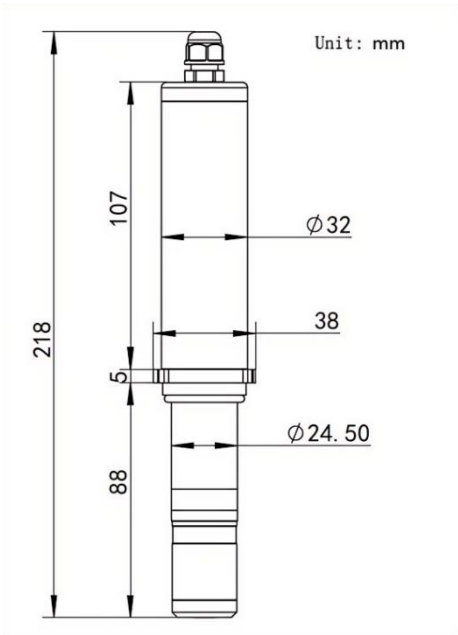


Fig 1 Cable diagram

Table 1 Cable Definition

No.	Color	Definition
1	Red	24VDC power supply
2	Black	GND
3	Green	RS485 output A
4	Yellow	RS485 output B
5	Purple [only for (4~20) mA output]	(4~20) mA output+
6	White [only for (4~20) mA output]	(4~20) mA output-

Dimensions



Ordering code

SUP-ADC1100														Description
ADC1100	-	-	-	-	-	-	-	-	-	-	-	-	-	0-5mg/L
Measuring range	WB													0-20mg/L
	WC													NTC 10K
Temperature compensation		1												Quick-connect fitting
Process connection			AJ											4-20mA+RS485
Output				B										12VDC
Power supply				B										Others
				X										2m
Cable length					02									Others
					XX									ABS plastic
Housing material						ND								Flow cell
Accessories						P3								