### **SPS-CI Series Chlorine Sensor Datasheet**

## **Product description**

SPS-CI series chlorine sensor is designed with amperometric potentiostat 3 electrode method and membrane covered method, which effectively reduces the interference of pH value on sensor measurement. SPS-CI series chlorine sensors are widely used in tap water, pipe network, medical wastewater and other fields, and can provide customers with accurate and efficient monitoring.



#### **Application**

- Monitoring of tap water and pipe network
- Swimming pool total chlorine monitoring
- Medical wastewater, effluent monitoring after disinfection
- Other industrial water, cooling water and other total chlorine monitoring

## **Advantage**

- Three-electrode coating method, stable and accurate measurement
- No chemical reagent consumption, environmentally friendly
- Long maintenance-free period and low maintenance cost
- The device is compact and easy to install

# **Specifications**

Measurement method  Temperature:  Parameter  Free chlorine, Total chlorine (optional)  fCl/tCl: 0-2mg/L(ppm), 0-20mg/L  Temperature: 0-50 °C  Resolution  fCl/tCl: 0.001 mg/L  Temperature: 0.1 °C  fCl/tCl: ±3% of the reading or ±0.02mg/L, the larger after calibration at repeatability conditions (25°C, pH 7.2 in drinking water) of the upper full scale  Temperature: ±1 °C  Dimensions  ### Q25×205mm  Weight  ### Do.11kg  Power requirements  ### DC +12~+24V  ### Mounting  ### Flow-through installation  Operating temperature  2~45 °C (35.6~113°F)  Sensor cable length  ### Zm(6.56ft), Please contact us for other sizes  Protocol  ### Modus RTU RS485  Temperature: 2~45 °C (35.6~113°F)  Flow rate: 250-500 mL/min  Pressure: 0.5 bar (7.25 psi) maximum compared to air, 2 to 50 °C (35.6 to 122°F) sample  Certifications  CE	Specification	Detail
Measurement method       3-electrode         Temperature:       Free chlorine, Total chlorine (optional)         Measuring range       fCl/tCl: 0-2mg/L(ppm), 0-20mg/L         Resolution       fCl/tCl: 0.001 mg/L         Temperature: 0.1 °C       fCl/tCl: ±3% of the reading or ±0.02mg/L, the larger after calibration at repeatability conditions (25°C, pH 7.2 in drinking water) of the upper full scale Temperature: ±1 °C         Dimensions       φ25×205mm         Weight       0.11kg         Power requirements       DC +12~+24V         Mounting       Flow-through installation         Operating temperature       2~45 °C (35.6~113°F)         Storage temperature       2~45 °C (35.6~113°F)         Sensor cable length       2m(6.56ft), Please contact us for other sizes         Protocol       Modbus RTU RS485         Temperature: 2~45 °C (35.6~113°F)       Flow rate:250-500 mL/min         Pressure: 0.5 bar (7.25 psi) maximum compared to air, 2 to 50 °C (35.6 to 122°F) sample		fCl/tCl: Membrane covered, amperometric potentiostatic
Parameter       Free chlorine, Total chlorine (optional)         Measuring range       fCl/tCl: 0-2mg/L(ppm), 0-20mg/L         Resolution       fCl/tCl: 0.001 mg/L         Temperature: 0.1 °C         fCl/tCl: ±3% of the reading or ±0.02mg/L, the larger after calibration at repeatability conditions (25°C, pH 7.2 in drinking water) of the upper full scale Temperature: ±1 °C         Dimensions       φ25×205mm         Weight       0.11kg         Power requirements       DC +12−+24V         Mounting       Flow-through installation         Operating temperature       2~45 °C (35.6~113°F)         Storage temperature       2~45 °C (35.6~113°F)         Sensor cable length       2m(6.56ft), Please contact us for other sizes         Protocol       Modbus RTU RS485         Temperature: 2~45 °C (35.6~113°F)       Flow rate: 250-500 mL/min         Pressure: 0.5 bar (7.25 psi) maximum compared to air, 2 to 50 °C (35.6 to 122°F) sample		
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Temperature: 0-50 °C    February   Filter   Fil	Parameter	·
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Temperature: $0.1  ^{\circ}\text{C}$ AccuracyTemperature: $0.1  ^{\circ}\text{C}$ AccuracyTemperature: $\pm 1  ^{\circ}\text{C}$ Dimensions $\phi 25 \times 205  \text{mm}$ Weight $0.11  \text{kg}$ Power requirements $DC + 12 \sim + 24  \text{V}$ MountingFlow-through installationOperating temperature $2 \sim 45  ^{\circ}\text{C}  (35.6 \sim 113  ^{\circ}\text{F})$ Storage temperature $2 \sim 45  ^{\circ}\text{C}  (35.6 \sim 113  ^{\circ}\text{F})$ Sensor cable length $2 \sim 45  ^{\circ}\text{C}  (35.6 \sim 113  ^{\circ}\text{F})$ FrotocolModbus RTU RS485Temperature: $2 \sim 45  ^{\circ}\text{C}  (35.6 \sim 113  ^{\circ}\text{F})$ Flow rate: $250 \sim 500  \text{mL/min}$ Pressure: $0.5  \text{bar}  (7.25  \text{psi})  \text{maximum compared to air, 2}$ to $50  ^{\circ}\text{C}  (35.6  \text{to } 122  ^{\circ}\text{F})  \text{sample}$		Temperature: 0-50 °C
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$ \begin{array}{c} \textbf{Accuracy} & \text{after calibration at repeatability conditions (25°C, pH 7.2 in drinking water)} \\ \textbf{of the upper full scale} \\ \textbf{Temperature: } \pm 1 \ ^{\circ}\text{C} \\ \textbf{Dimensions} & \phi 25 \times 205 \text{mm} \\ \textbf{Weight} & 0.11 \text{kg} \\ \textbf{Power requirements} & DC + 12 \sim + 24 \text{V} \\ \textbf{Mounting} & Flow-through installation} \\ \textbf{Operating temperature} & 2 \sim 45 \ ^{\circ}\text{C} (35.6 \sim 113 \ ^{\circ}\text{F}) \\ \textbf{Storage temperature} & 2 \sim 45 \ ^{\circ}\text{C} (35.6 \sim 113 \ ^{\circ}\text{F}) \\ \textbf{Sensor cable length} & 2 \text{m} (6.56 \text{ft}), \text{ Please contact us for other sizes} \\ \textbf{Protocol} & \text{Modbus RTU RS485} \\ \textbf{Temperature: } 2 \sim 45 \ ^{\circ}\text{C} (35.6 \sim 113 \ ^{\circ}\text{F}) \\ \textbf{Flow rate: } 250-500 \ \text{mL/min} \\ \textbf{Pressure: } 0.5 \ \text{bar} \ (7.25 \ \text{psi) maximum compared to air, 2 to 50 \ ^{\circ}\text{C} (35.6 \ \text{to } 122 \ ^{\circ}\text{F}) \ \text{sample} \\ \end{array}$		Temperature: 0.1 °C
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	Accuracy	fCl/tCl: ±3% of the reading or ±0.02mg/L, the larger
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Weight $0.11kg$ Power requirementsDC +12~+24VMountingFlow-through installationOperating temperature $2~45~^{\circ}C$ ( $35.6~113~^{\circ}F$ )Storage temperature $2~45~^{\circ}C$ ( $35.6~113~^{\circ}F$ )Sensor cable length $2m(6.56ft)$ , Please contact us for other sizesProtocolModbus RTU RS485Temperature: $2~45~^{\circ}C$ ( $35.6~113~^{\circ}F$ )Flow rate: $250-500$ mL/minPressure: $0.5$ bar ( $7.25$ psi) maximum compared to air, $2$ to $50~^{\circ}C$ ( $35.6$ to $122~^{\circ}F$ ) sample		Temperature: ±1 °C
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, , ,		Pressure:0.5 bar (7.25 psi) maximum compared to air, 2
Certifications CE		to 50 °C (35.6 to 122°F) sample
	Certifications	CE
Warranty One year	Warranty	One year

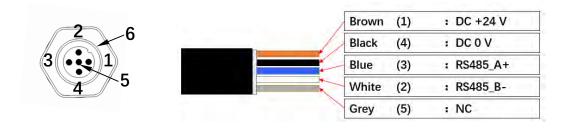
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## **Equipment selection**

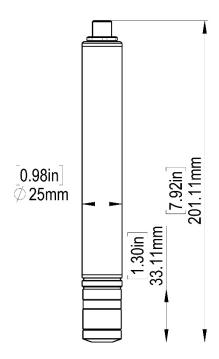
Model	Parameter Parame
SPS-CI-F	Free chlorine
SPS-CI-T	Total chlorine

### **Interface definition**

The sensor tail connection mode is 5-core M12 aviation connector (equipped with M12 shielded cable, standard 2m).



### **Dimensions**



#### **Sensor calibration instructions**

#### **Two-point calibration**

It is recommended to use this calibration method first. The calibration is based on the raw total chlorine concentration fitted to the sensor current value.

The sensor has been zero-calibrated before leaving the factory, and users generally do not need to perform zero-point calibration.

Calculated as follows:

$$fCl = \frac{CurrInA - X\_Zero}{X\_Kp}$$

#### Note:

- fCl is the original value of total chlorine (mg/L);
- CurrInA is the sensor current value;
- X\_Zero and X\_Kp are calibration parameters, which are calculated using two
  points according to the formula. Generally, the default X\_Zero is 0.
- When the measurement concentration is less than 0.1mg/L, to improve the measurement accuracy of low concentration. Two-point calibration method can be used (cannot be directly placed in pure water for zero-point calibration)

Note: During calibration, a valid slope (non-zero) and a valid date and time (non-zero) need to be written in the X\_Kp register for successful calibration.