



## YLG-2058-01 Residual Chlorine Sensor



### 1. Working principle

Electrolyte and osmotic membrane separates the electrolytic cell and water samples, permeable membranes can selectively to  $\text{ClO}^-$  penetration; between the two electrode has a fixed potential difference, current intensity generated can be converted into residual chlorine concentration;

At the cathode:  $\text{ClO}^- + 2\text{H}^+ + 2\text{e}^- \rightarrow \text{Cl}^- + \text{H}_2\text{O}$

At the anode:  $\text{Cl}^- + \text{Ag} \rightarrow \text{AgCl} + \text{e}^-$

Because in a certain temperature and pH conditions,  $\text{HOCl}$ ,  $\text{ClO}^-$  and residual chlorine between fixed conversion relationship, in this way can measure the residual chlorine.

### 2. Technical Indexes

- (1) Measuring range: 0.005 ~ 20ppm(mg/L)  $\text{HOCl}$
- (2) The minimum detection limit: 5ppb or 0.05mg/L  $\text{HOCl}$
- (3) Accuracy: 2% or  $\pm 10$ ppb
- (4)  $\text{HOCl}$  response time: 90% < 90second
- (5) Storage temperature: -20 ~ 60 °C
- (6) Operation temperature: 0~45°C
- (7) Sample temperature: 0~45°C
- (8) Calibration method: laboratory comparison method
- (9) Calibration interval: 1/2 month
- (10) Maintenance interval: Replacement of a membrane and electrolyte every six months
- (11) The connection tubes for inlet and outlet water: external diameter  $\Phi 10$



### 3. Daily maintenance

- (1) Such as the discovery of the whole measurement system long response time, membrane rupture, no chlorine in the media, and so on, it is necessary to replace the membrane, the maintenance of the electrolyte replacement. After each exchange membrane or electrolyte, the electrode needs to be repolarized and calibrated.
- (2) The flow rate of the influent water sample is kept constant;
- (3) The cable shall be kept in a clean, dry or water inlet.
- (4) Instrument display value and the actual value vary greatly or chlorine residual value is zero, may dry chlorine electrode in the electrolyte, the need to re injection into the electrolyte. Specific steps are as follows:

Unscrew the electrode head film head (Note: absolutely not to damage the breathable film), drained the film first before the electrolyte, then the new electrolyte poured into the film first. General every 3 months to add the electrolyte, half a year for a film head. After changing the electrolyte or the membrane head, the electrode is required to be re - calibrated.
- (5) Electrode polarization: the electrode cap is removed, and the electrode is connected to the instrument, and the electrode is more than 6 hours after the electrode is polarized.
- (6) When not using the site for long time without water or meter long time, should promptly remove the electrode, sheathe a protection cap.
- (7) If the electrode fails to change the electrode.