



## **Dissolved Oxygen Measurement**

### **Measuring Principle of Dissolved Oxygen Sensors**

Dissolved oxygen can be measured with membrane-type dissolved oxygen electrodes using a galvanic cell or membrane-type dissolved oxygen electrodes using a polarographic cell:

#### **Membrane-type dissolved oxygen electrodes using a galvanic cell**

The membrane-type dissolved oxygen electrodes using a galvanic cell are configured as illustrated below. The working electrode uses a noble metal (Ag), and the opposite electrode uses a base metal (Pb). For the electrolyte, an alkaline solution is used. For the membrane, a highly oxygen-permeable Teflon membrane is used.

Oxygen which has passed through the membrane is reduced with the working electrode. A reduction current in proportion to the concentration of the dissolved oxygen is generated, and then the dissolved oxygen is measured.

#### **Membrane-type dissolved oxygen electrodes using a polarographic cell**

The membrane-type dissolved oxygen electrodes using a polarograph are configured as illustrated below. The working electrode uses a noble metal (Pt), and the opposite electrode uses Ag. For the electrolyte, a potassium chloride solution is used, and for the membrane, a Teflon membrane is used.

Voltage is applied between the two electrodes so that the threshold diffusion current for oxygen is generated there. The oxygen which has passed through the membrane is reduced with the working electrode. A reduction current in proportion to the dissolved oxygen is generated, and then the dissolved oxygen is measured.

#### **Dissolved Oxygen Transducer**

In either case the current, which has flowed in proportion to the concentration of the dissolved oxygen, is processed with the current amplifier and then the concentration of the dissolved oxygen is measured.