

Optical DO Sensor with Fast Response Time^Ä

30" Kpvtq f wekqp

Dissolved oxygen (hereinafter, DO) sensors are widely used in water quality measurements and other fields. Measurement principles can be broadly divided into chemical methods and optical methods, and the respective sensors have distinctive features. As demerits of the chemical type, the response time was slow (approximately 9 s at the fastest) and maintainability was poor, as periodic exchanges of the electrolyte and membrane were necessary. On the other hand, with the optical type, periodic exchanges of parts were not necessary, but optical DO sensors had the drawbacks of high cost and slower response time (approx. 30 s) than chemical DO sensors.

In profiling measurements which are required in surveys of the marine environment, high accuracy measurement in the widest possible range, extending to deep water, is sometimes necessary. Due to the slow response time of conventional optical DO sensors, rapid measurement within a limited time was not possible, making it difficult to respond to the needs of users. Therefore, JFE Advantech concluded that a fundamental solution was necessary and decided to develop independently an oxygen sensing membrane for optical DO sensors from the level of the materials. As a result, a new sensor with a fast response time of within 1 strength with a thin membrane composition.

(2) Improvement of Drift Characteristics while Maintaining Fast Response Time

Faster response time and improved drift are mutually contradictory. To enable use with no decrease in

