

# GS Oxygen Sensors

GS oxygen sensors, model KE-series, are newly developed galvanic cell type sensors. By using acid electrolyte, the sensor has an exceptionally long life and excellent chemical durability.

## Features

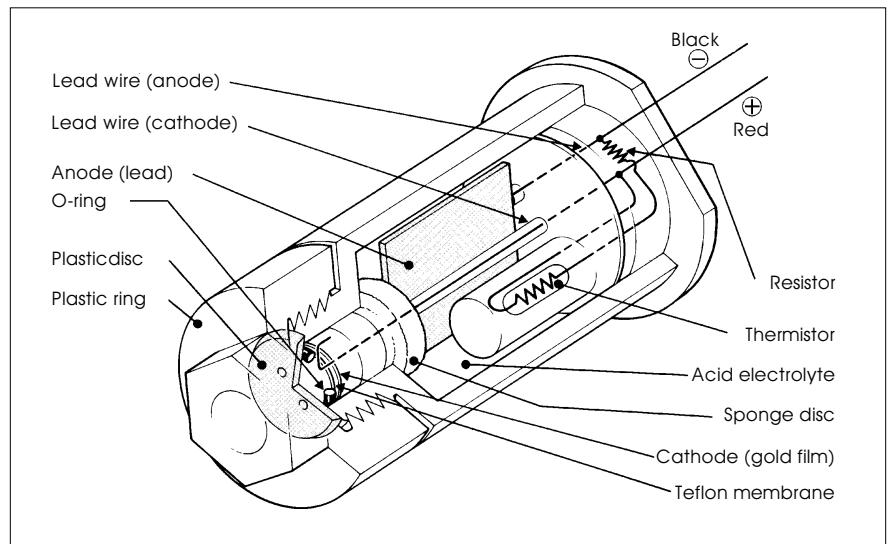
- \* Long life  
KE-25 - 5 years  
KE-50 - 10 years
- \* Virtually no influence from CO<sub>2</sub>, CO, H<sub>2</sub>S, NO<sub>x</sub>, H<sub>2</sub>
- \* Low cost
- \* Operates in normal ambient temperatures
- \* Stable output signal
- \* No external power supply required for sensor operation
- \* No warmup time is required

## Applications

- |                |   |
|----------------|---|
| Medical:       | Anesthetic instruments, respirators, oxygen-enrichers |
| Biotechnology: | Oxygen incubators                                     |
| Food industry: | Refrigeration, greenhouses                            |
| Safety:        | Air conditioners, oxygen detectors, fire detectors    |



## Structure of KE-25 / KE-50



## Principle

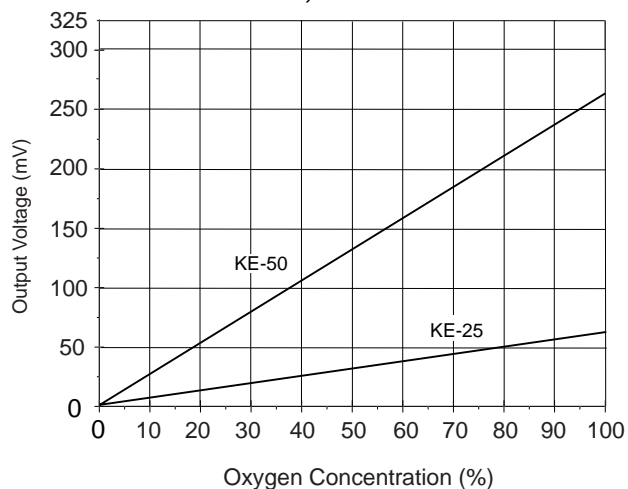
GS oxygen sensors incorporate a lead oxygen cell with a lead anode and a gold cathode, using a specific acid electrolyte. Oxygen molecules diffuse through a non-porous fluorine resin membrane into the electrochemical cell and are reduced at the gold electrode. The current flowing between the electrodes is proportional to the oxygen concentration in the gas mixture to be measured. The signals are measured as terminal voltages of the resistor and the thermistor for temperature compensation. The change in output voltages represents the oxygen concentration.

## Specifications

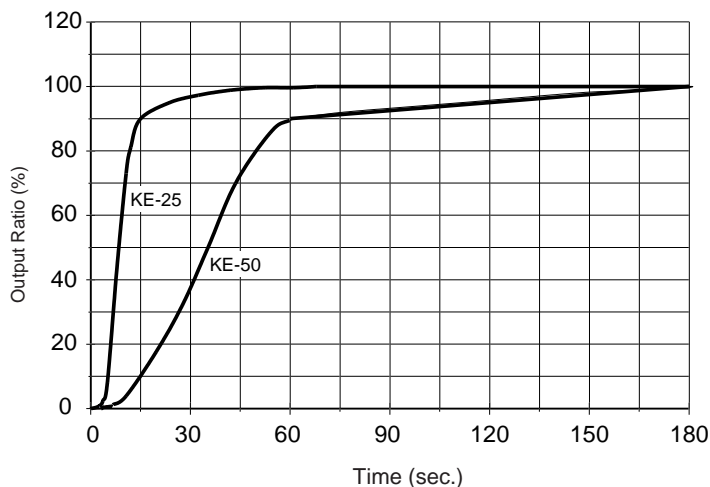
Model	KE-25	KE-50
Measurement range	0~100% O <sub>2</sub>	0~100% O <sub>2</sub>
Accuracy	±1% (full scale)	±2% (full scale)
Operating temperature	5~40°C	5~40°C
Storage temperature	-20~+60°C	-20~+60°C
Response time (90%)	14±2 seconds	60±5 seconds
Initial output voltage (at 21%O <sub>2</sub> and std test conditions of 25±1°C, 60±5%RH, 1013±5hPa)	10.0~15.5mV	47~65mV
Life expectancy	approx. 900,000% hours (approx. 5 yrs. in 20°C air)	approx. 1,800,000% hours (approx. 10 yrs. in 20°C air)

**Remarks:** Life expectancy is specified as % hours (O<sub>2</sub> concentration % x hours)

**Sensitivity characteristics** (typical values under std. test conditions)

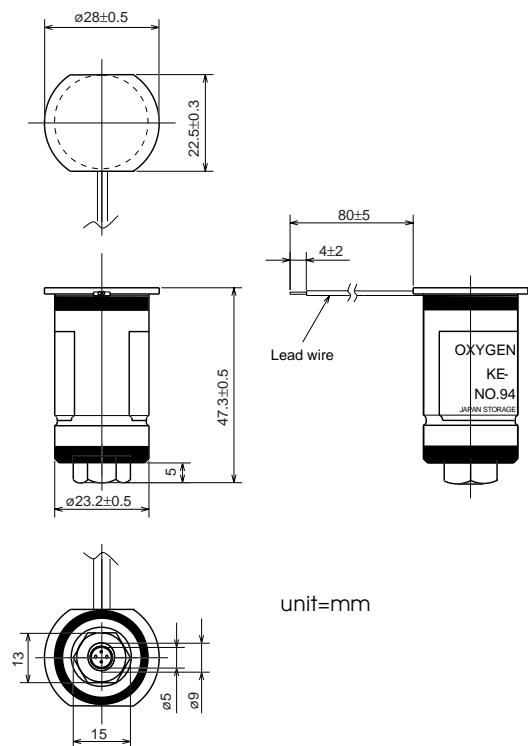


**Response time** (typical)

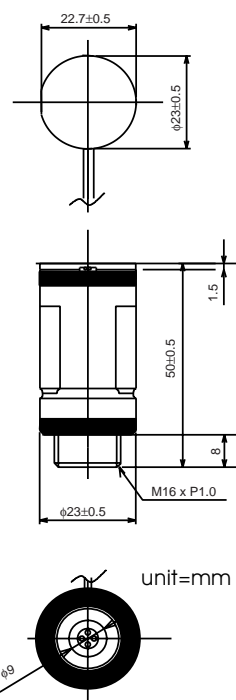


**Dimensions**

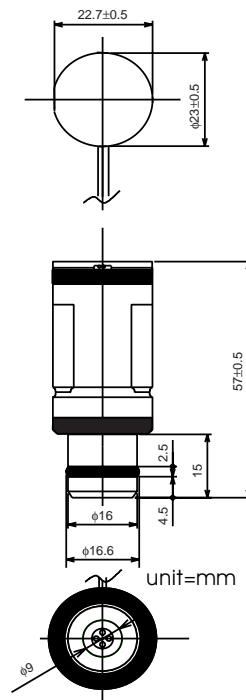
KE-25/KE-50 standard version



KE-25F3 (threaded top)



KE-25F4 (O-ring top)



**Handling instructions**

- \* Prevent condensation on the sensing element.
- \* Do not subject the sensor to excessive shock or vibration.
- \* The sensor must be connected to equipment which has an input impedance of 1000kΩ or higher.
- \* The equipment to which the sensor is connected should not generate a counter electromotive force, i.e. it must not charge the sensor.
- \* Do not attempt to disassemble or repair the sensor under any circumstance.