FIGARO

PRODUCT INFORMATION

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.

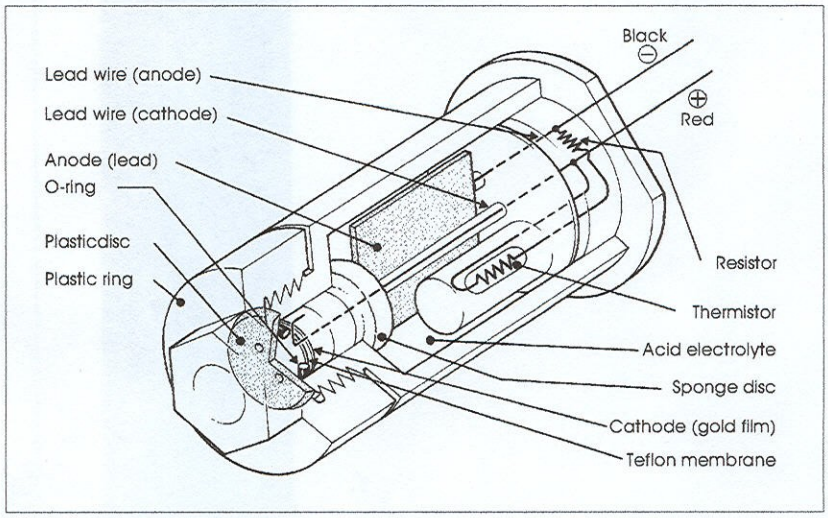
Features

* Long life
  KE-25 - 5 years
  KE-50 - 10 years
* Virtually no influence from CO_2, CO, H_2S, NOx, H_2
* 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

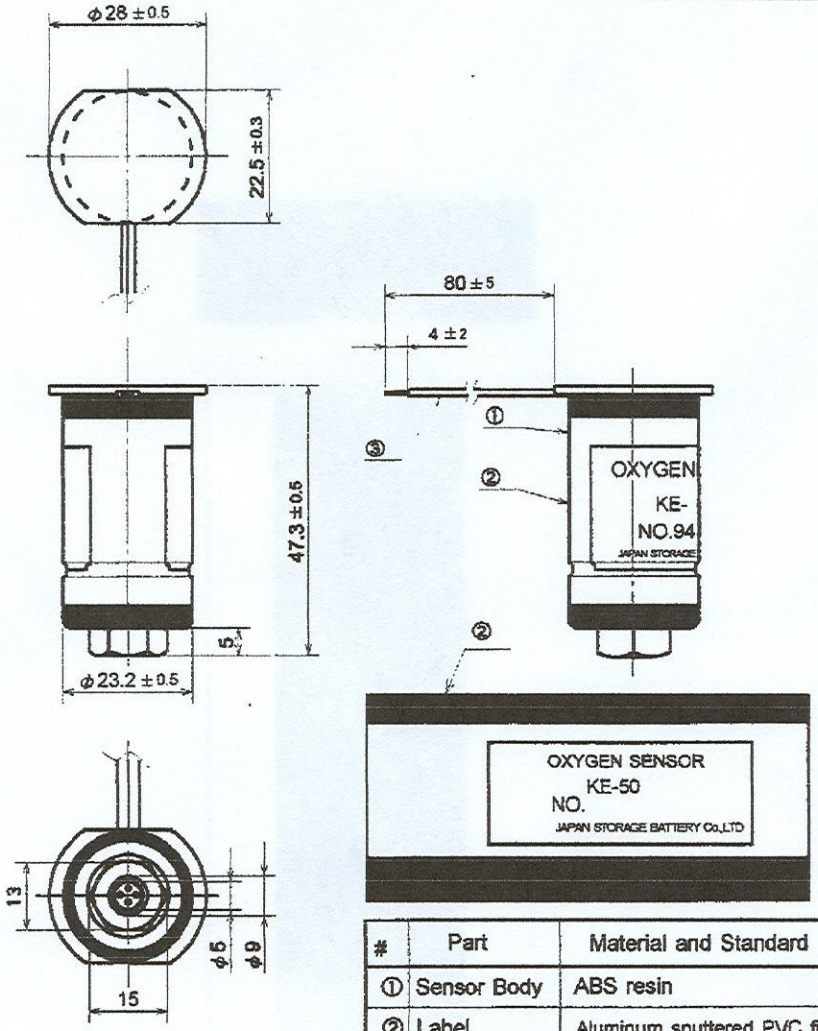
GS oxygen sensors incorporate a lead oxygen cell with a lead anode and a gold cathode, using a specific acid electrolyte. Oxygen molecules diffuse through a non-porous flourine resin membrane into the electrochemical cell and are reduced at the gold electrode. The current flowing between the electrodes 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_2	0~100% O_2
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_2 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_2 concentration % x hours)

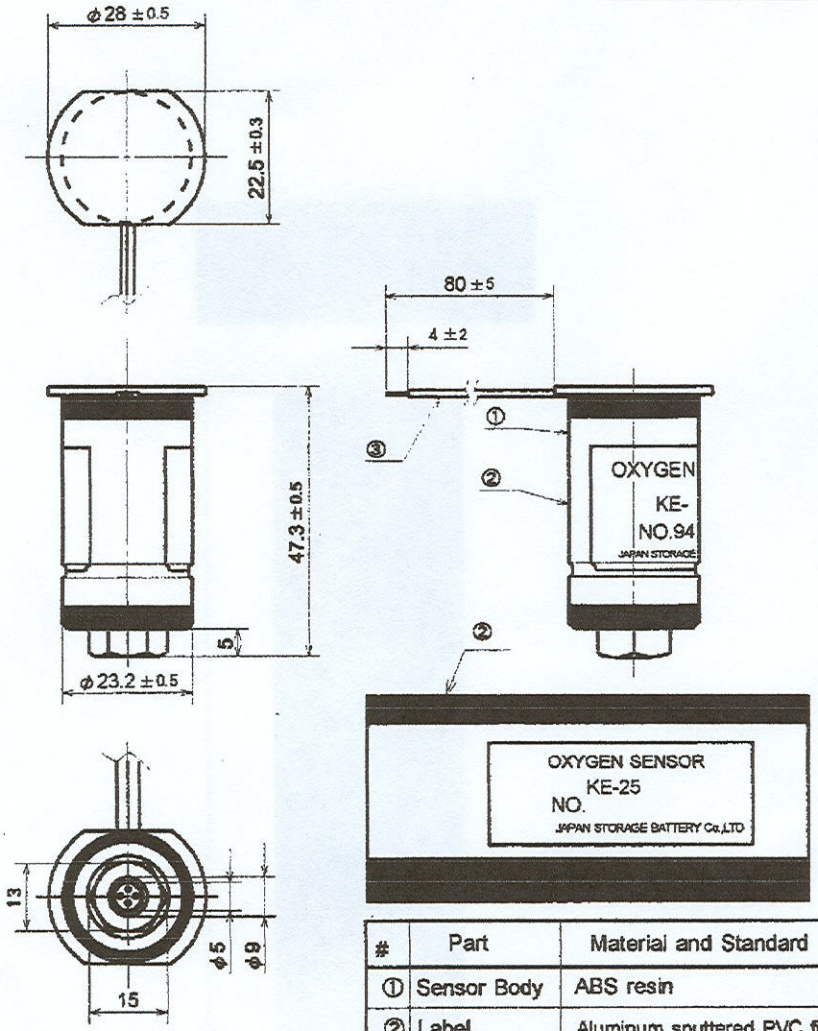
95MJ-KE2



#	Part	Material and Standard
①	Sensor Body	ABS resin
②	Label	Aluminum sputtered PVC film
③	Lead Wire	Vinyl sheathed copper wire red,black, AWG #24

Drawing *N.Kitamura*	Product: GS Oxygen Sensor KE-50
Scale 1:1	Dimension-Outline Drawing
Japan Storage Battery Co.,Ltd. Specialty Div.	Date: Feb.22,1995
	Drawing No. 95MJ-KE2

95MJ-KE1



#	Part	Material and Standard
①	Sensor Body	ABS resin
②	Label	Aluminum sputtered PVC film
③	Lead Wire	Vinyl sheathed copper wire red,black, AWG #24

Drawing *N.Kitamura*	Product: GS Oxygen Sensor KE-25
Scale 1:1	Dimension-Outline Drawing
Japan Storage Battery Co.,Ltd. Specialty Div.	Date: Feb.22,1995 / Drawing No. 95MJ-KE1

FIGARO

PRODUCT INFORMATION

GS Oxygen Sensors

Features:

* **Long life**
  KE-25 - 5 years / KE-50 - 10 years
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* **Low cost**
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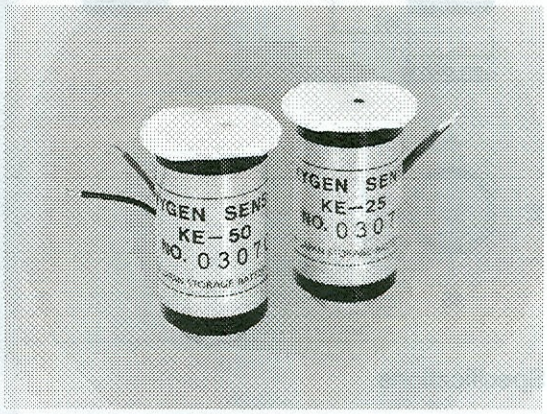
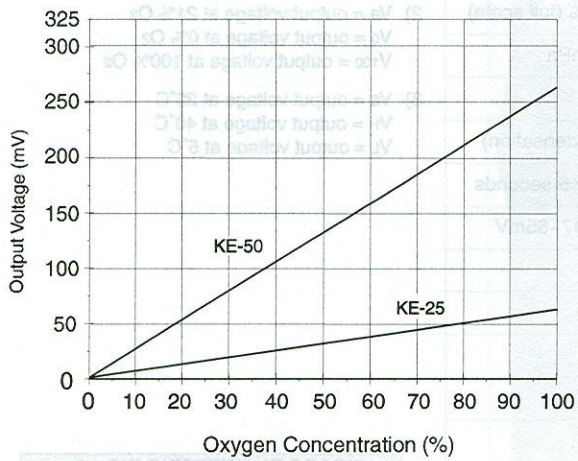
Applications:

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

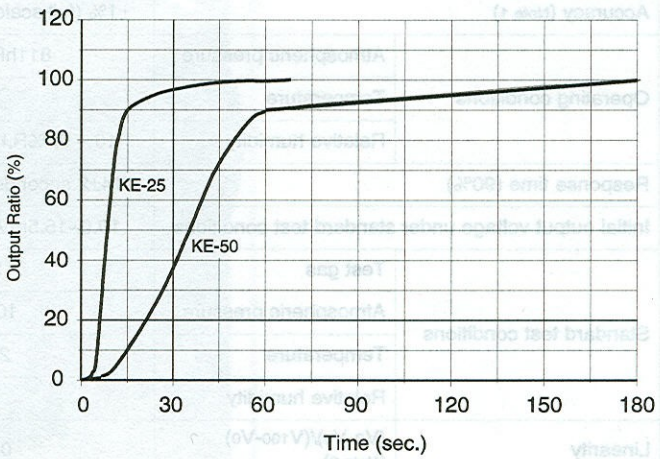
The GS Oxygen Sensor KE series (KE-25 and KE-50) is a unique glavanic cell type oxygen sensor which was developed in Japan in 1985. Its most notable features are long life expectency, excellent chemical durability, and it is not influenced by CO_2. The KE series oxygen sensor is ideal to meet the ever-increasing demand for oxygen monitoring in various fields such as combustion gas monitoring, the biochemical field, medical applications, domestic combustion appliances, etc.



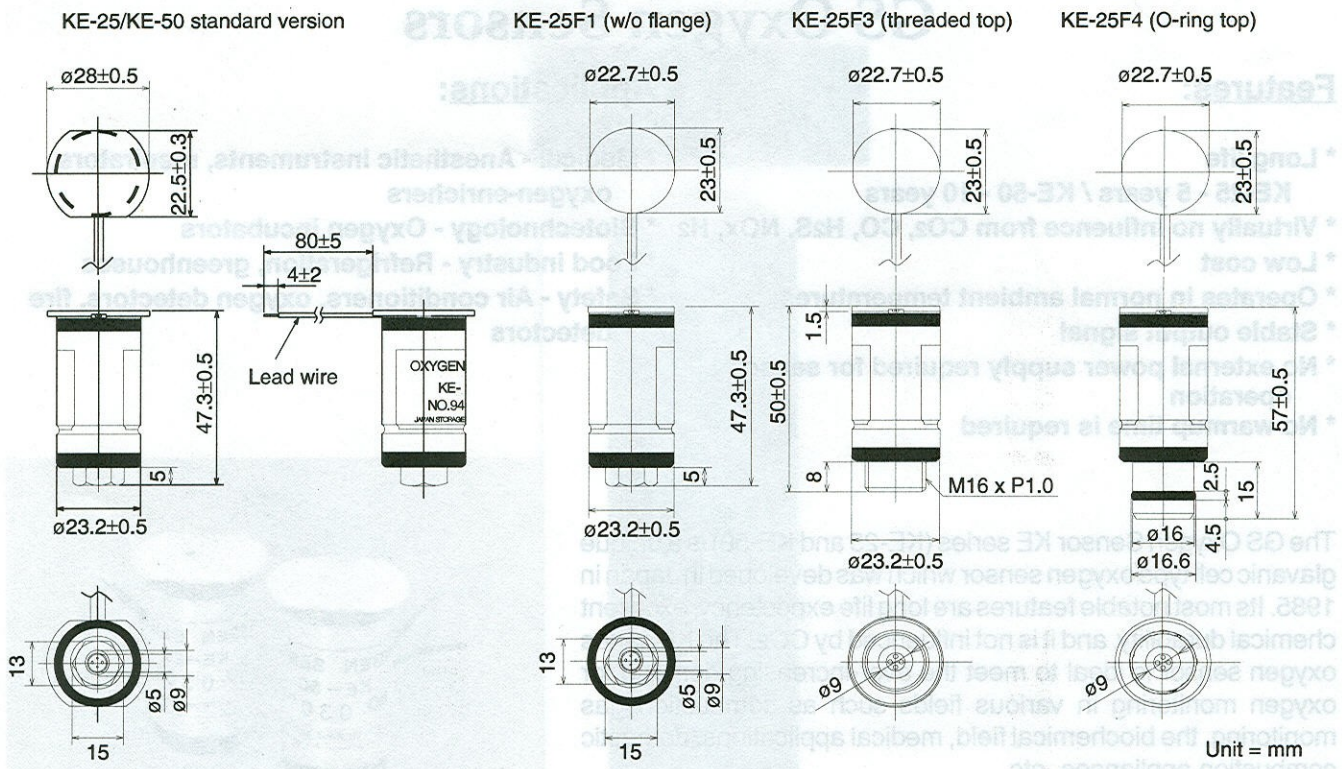
Sensitivity characteristics (typical values under std. test conditions)



Response time (typical)



Dimensions



Specifications

Item		Model	
		KE-25	KE-50
Measurement range		0~100% O_2	
Accuracy (Note 1)		±1% (full scale)	±2% (full scale)
Operating conditions	Atmospheric pressure	811hPa ~1216hPa	
	Temperature	5~40°C	
	Relative humidity	10 ~ 90%R.H. (no condensation)	
Response time (90%)		14±2 seconds	60±5 seconds
Initial output voltage under standard test conditions		10.0~15.5mV	47~65mV
Standard test conditions	Test gas	21% O_2	
	Atmospheric pressure	1013±5hPa	
	Temperature	25°C±1°C	
	Relative humidity	60±5%	
Linearity	$(Va-V_0)/(V_{100}-V_0)$ (Note 2)	0.21±0.02	
Offset voltage	V_0	≤0.5mV	≤6.0mV
Temperature characteristics (Note 3)	V_H/Va	0.91~1.09	
	V_L/Va	0.91~1.09	

Notes:

1) When calibrated at both 0% and 100% of O_2, accuracy in the range from 0-100% O_2 shall be within ±1% of full scale for KE-25 and ±2% of full scale for KE-50.

2) Va = output voltage at 21% O_2
   V_0 = output voltage at 0% O_2
   V_{100} = output voltage at 100% O_2

3) Va = output voltage at 25°C
   V_H = output voltage at 40°C
   V_L = output voltage at 5°C

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