

# Limiting-current type Oxygen Analyzer **OX100, OX102**



## ***OX100, OX102***

### *Limiting-current type Oxygen Analyzer*

- *One Instrument measures 100 ppm to 25% Oxygen*
- *Simple "One Touch" Calibration*
- *Self Diagnostics Assure High Reliability*
- *"One Touch" Sensor Replacement*
- *Compact Size*
- *Accessories to Assure Accuracy*
  - *Dedicated Sampling Unit (Separate from Oxygen Analyzer)*  
*(Removes Dust, Mist and Organic Solvents)*
  - *Calibration Kit*  
*Simple On-Site Calibration*  
*(Using 1 liter Gas Cylinder)*

Bulletin 11M10A01-03E

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# A Compact Environmental Oxygen Analyzer with the usual Yokogawa reliability

MODEL

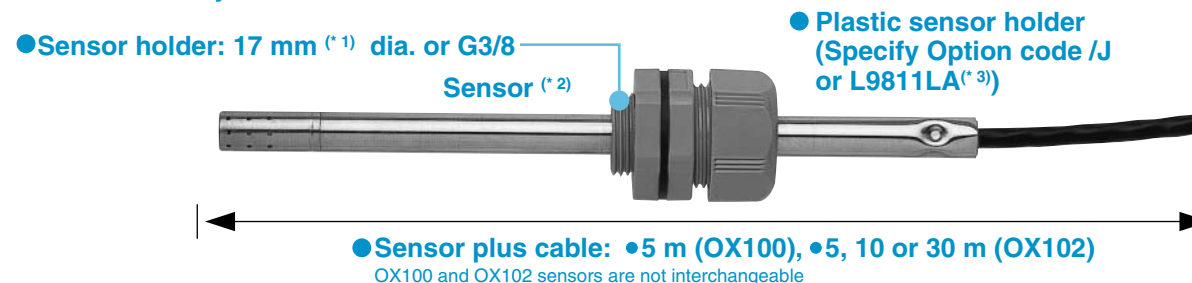
## OX102



### Enhanced Oxygen Analyzer

#### Applications

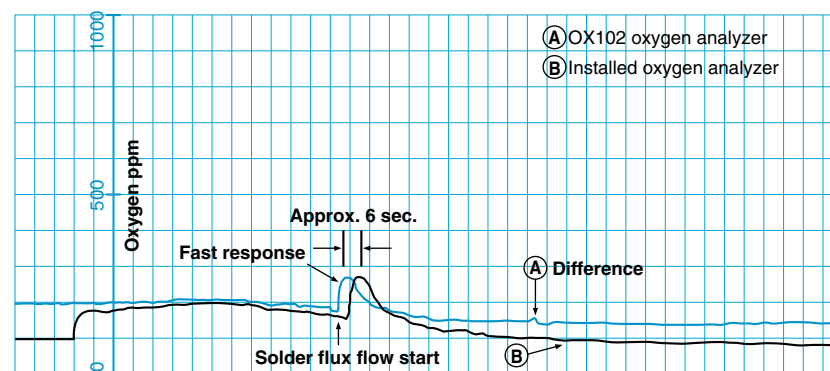
- N<sub>2</sub> reflow furnaces
- Semiconductor maker environmental monitoring
- ppm-level O<sub>2</sub> measurement
- Monitoring purity of N<sub>2</sub>, Ar separated from air
- Monitoring for deficiency of O<sub>2</sub>



1 : When mount in 17 mm hole in panel, panel thickness can be up to 4 mm. 2 : Within 5 cm of sensor tip, can reach 250°C.  
3 : Specify Option code /S, or Model K9424DB, for metal nipple.

#### Example: N<sub>2</sub> reflow furnace

- Temperature : 120-130°C
- Gas flow : 1m/sec.
- Environment : Alcohol / Rosin / Flux, Oxygen 100 ppm
- Compared with oxygen meter it replaced,
- Response was faster, so changes were quickly detected
- Easy maintenance for Sampling unit (easy replacement of filter, activated carbon)



MODEL

## OX100



### General-Purpose Oxygen Analyzer

#### Applications

- Development lab., globe box
- Clean room for testing, environment, fermentation, biochemical
- Continuous monitoring of gas flow in food packing
- Aging machine

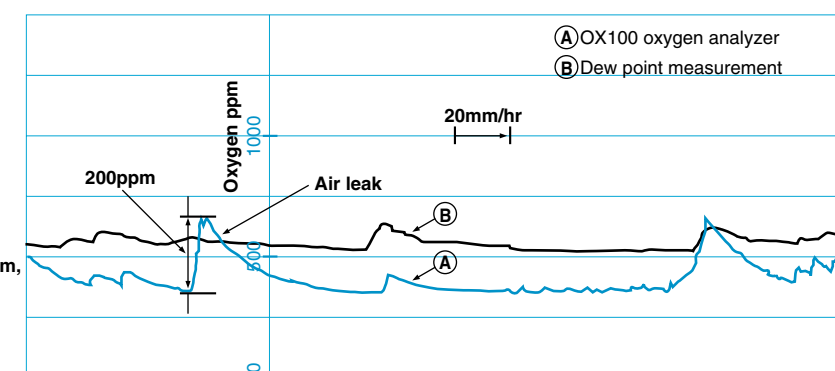


Main applications	Usage cautions
Globe box (processing crystal parts)	Box is to be filled with inert gas
Globe box (in research lab.)	If organic solvents in box, use sampling unit
N <sub>2</sub> reflow furnace / auto soldering	Use sampling unit, remove alcohol / flux from furnace
Clean room	Use sampling unit if organic solvents present
Aging machine	High temperatures, so use metal nipple K9424DB
Monitoring for deficiency of O <sub>2</sub>	Use OX102 with Hi/Lo Alarms, or OX100-3 (Lo)
Foodstuffs	Use sampling unit if disinfectant is alcohol-based

Measurement cautions \* 1 : Sensor should not be exposed to silicone vapor, silicon gas.  
\* 2 : Corrosive or flammable gases, halogens, Freon, or organic solvents may adversely affect sensor.

#### Example: Measuring oxygen concentration in welding furnace

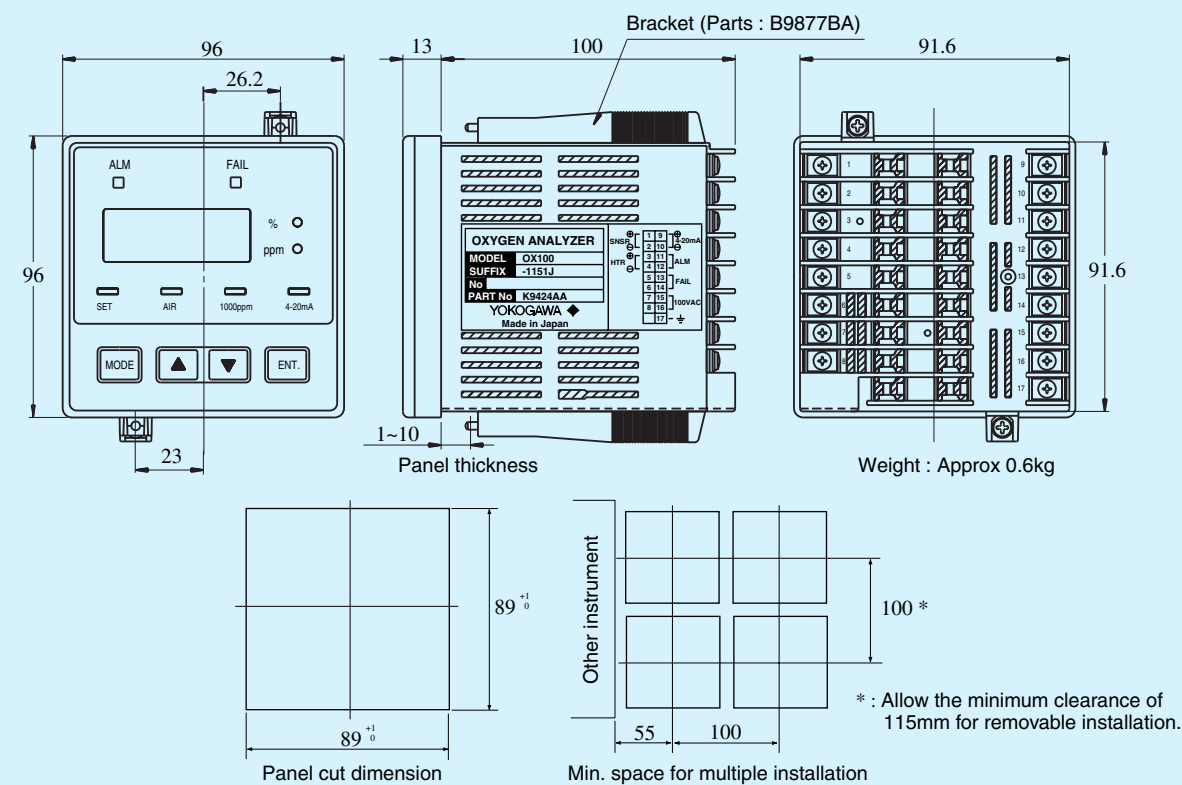
- Temperature : Room temperature, atmospheric pressure
- Gas flow : 30 Nl/min. (N<sub>2</sub>)
- Environment : Oxygen about 500 ppm in N<sub>2</sub>
- Low oxygen concentration in furnace: safety precautions required
- OX100 can detect atmospheric air leakage into furnace which causes oxygen to rise to 200 ppm, so can help with welding quality assurance.



## OX100 EXTERNAL DIMENSIONS

## Convertor

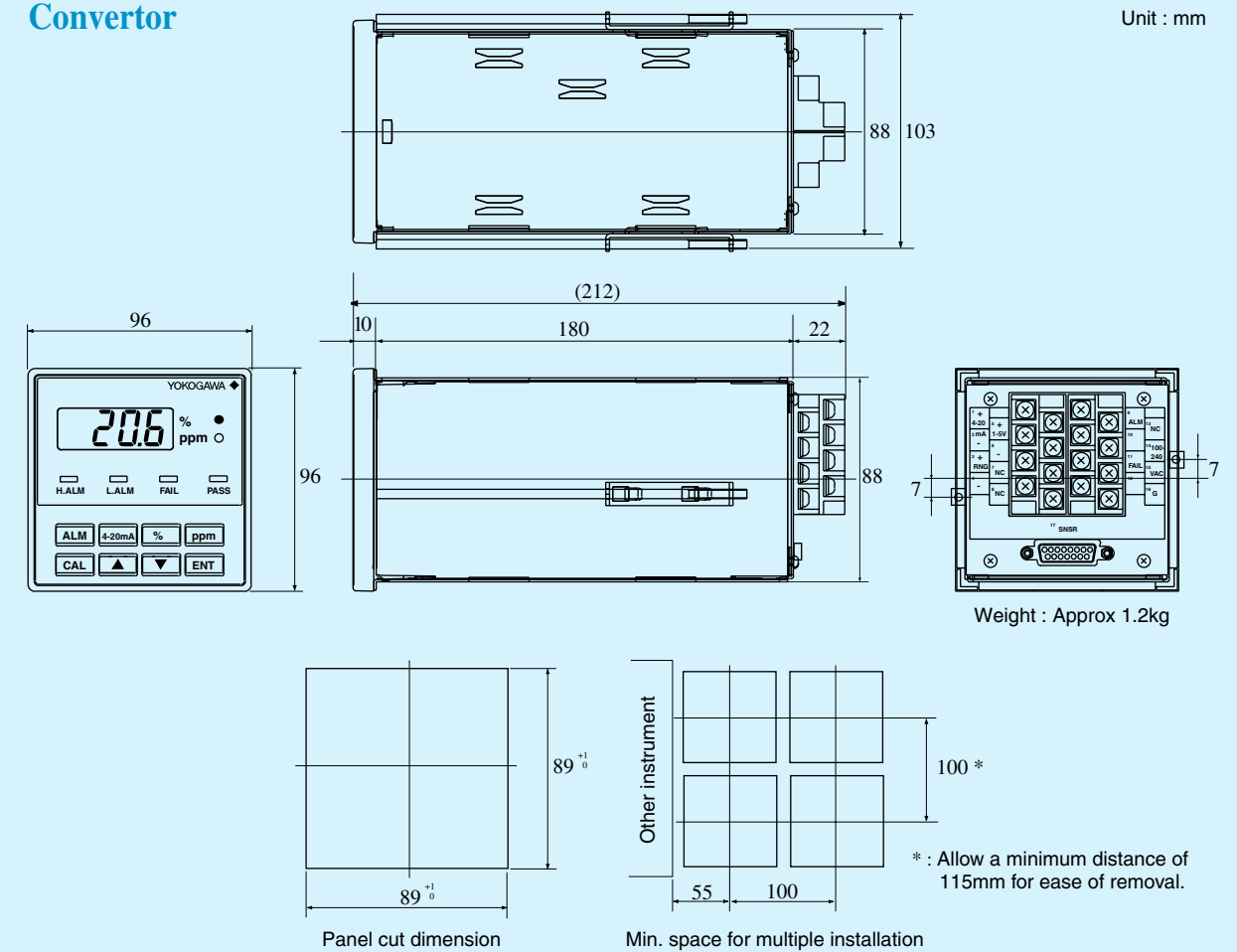
Unit : mm



## OX102 EXTERNAL DIMENSIONS

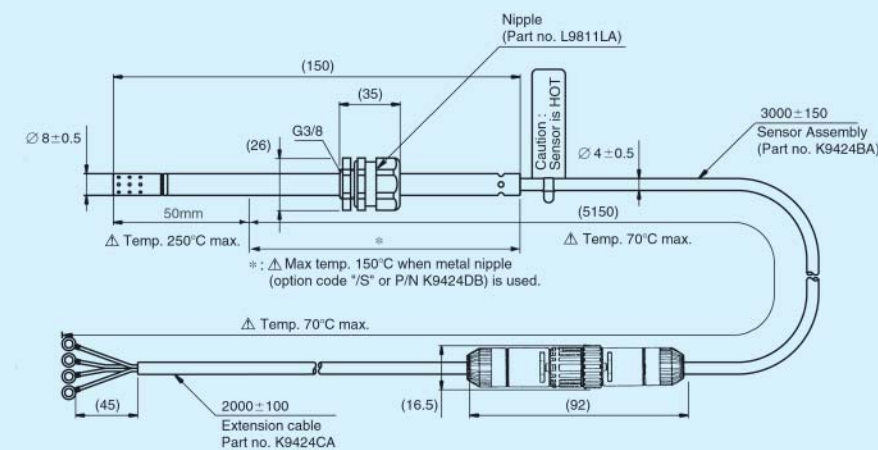
## Converter

Unit : mm



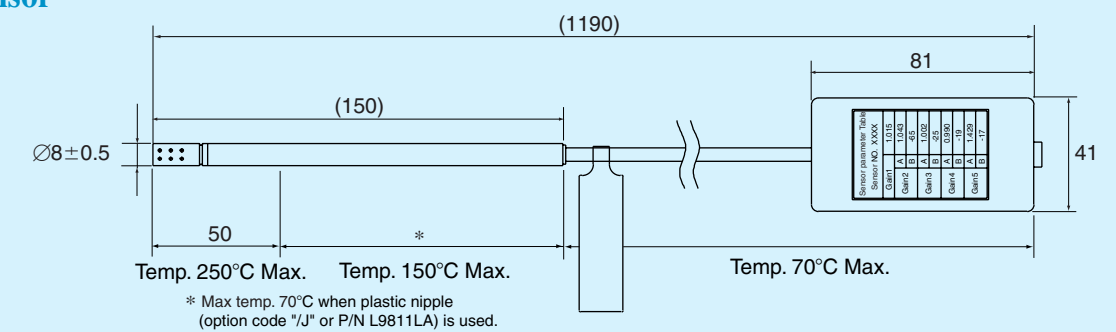
## Sensor

Unit : mm

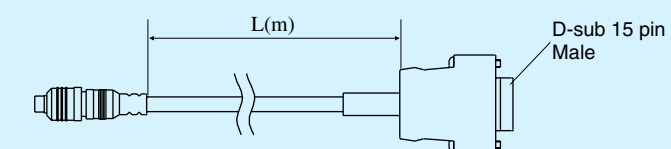


## Sensor

Unit : mm



### Sensor External Dimension

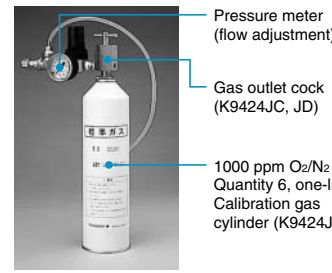
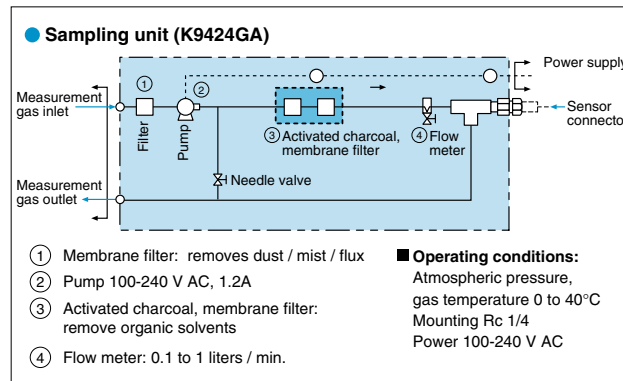


Model Code	L (m)
OX102-11 <input type="checkbox"/>	4
OX102-12 <input type="checkbox"/>	9
OX102-13 <input type="checkbox"/>	29



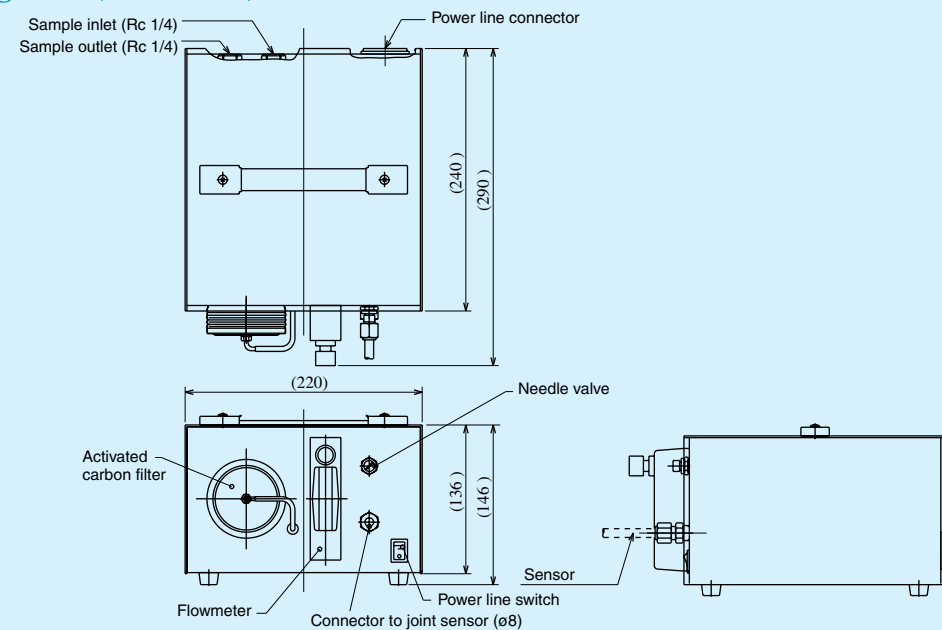


● Sampling unit (K9424GA)  
215 x 272 x 140 (mm), approx 4.8kg

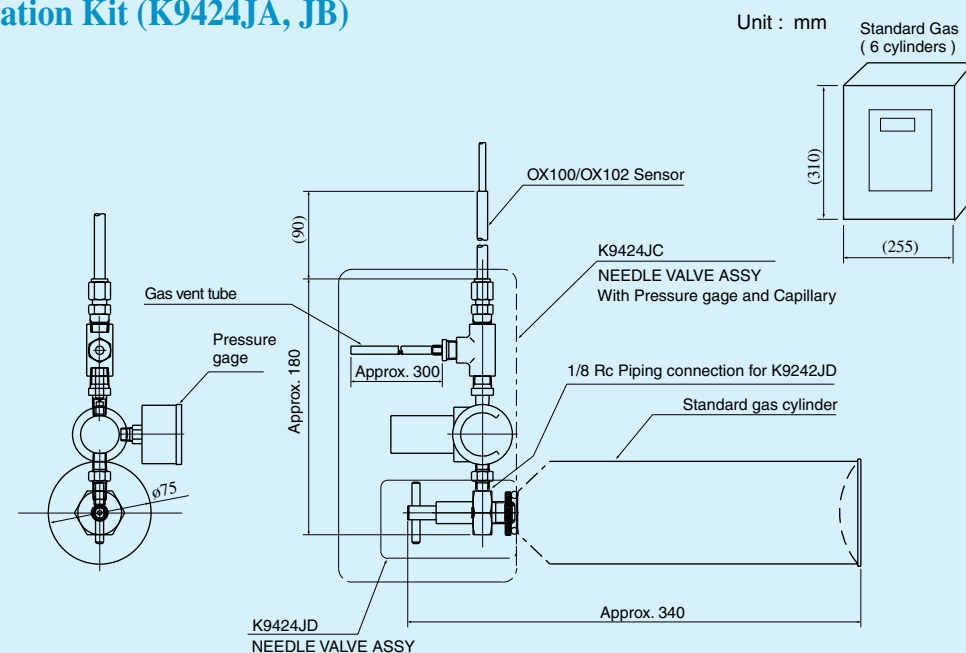


● Calibration kit (K9424JA, JB)  
Gas outlet cock + Qty. 6, one  
Calibration gas cylinder -  
210 x 75 x 335 mm, approx 800 g.

## Sampling Unit (K9424GA)



## Calibration Kit (K9424JA, JB)



## OX102 Standard Specifications

Model	OX102
Meas. principle	Limiting-current type
Sampling	Natural diffusion
Gas sample	Temperature 0 - 70°C, Humidity 20 - 80% RH (dew free), Pressure 1013 ± 40 hPa (Abs)
Measured gas	O <sub>2</sub> in N <sub>2</sub> or mixed gases; cannot be used with silicone vapor, combustible gases or organic solvents
Mounting	Indoor, panel mounting
Meas. ranges	0-100 ppm / 0-1000 ppm / 0-10000 ppm / 0-25%, automatic / fixed switching mode
Repeatability	±15 ppm (Meas. range : 20-100 ppm), ±25 ppm (Meas. range : 100-1000 ppm), ±0.3% of reading (Meas. range : 1000-5000 ppm), ±7.5% of reading (Meas. range : 5000-10000 ppm), ±0.25% (Meas. range : 1-25%)
Calibration	1. Atmospheric pressure calibration (between 15 to 25% O <sub>2</sub> ) 2. 100 ppm calibration (between 80 and 120 ppm) 3. 1000 ppm calibration (between 900 and 1100 ppm) 4. 9000 ppm calibration (between 8500 and 9500 ppm) 5. Atmospheric pressure, 20, 100, 500, 1000 and 9000 ppm calibration
Fine tune mode	The measuring value can be adjusted to true analyzed value.
Analog output	1. 4-20 mA DC isolated, fixed range (0-100, 0-1000, 0-10000 ppm, 0-25% selectable), or 4-20 mA DC autoranging. 2. 1-5 V DC, fixed range (0-100, 0-1000, 0-10000 ppm, 0-25% selectable) 3. Zone signal output for 4-20 mA DC autoranging
Contact output	Two outputs, rated 110 V AC, 24 V DC, 1 A Hi or Lo alarm, sensor disconnected alarm
Alarm output	Hi or Lo alarm. setting range : 1 ppm to 24.9%.
Self-diagnostics	Sensor disconnected
Storage environment	Sensor and converter temperature 0 to 70°C (dew free)
Power supply	100-240V AC ±10%, 50/60Hz 15VA
Converter size	96 x 96 x 190 mm

## OX100 Standard Specifications

Model	OX100
Meas. principle	Limiting-current type
Sampling	Natural diffusion
Gas sample	Temperature 0 - 70°C, Humidity 20 - 80% RH (dew free), Pressure 1013 ± 40 hPa (Abs)
Measured gas	O <sub>2</sub> in N <sub>2</sub> or mixed gases; cannot be used with silicone vapor, combustible gases or organic solvents
Mounting	Indoor, panel mounting
Meas. ranges	0 to 1000 ppm, 0 to 25% (measuring range autoswitching)
Repeatability	±5% of span (for 0-1000 ppm range, with O <sub>2</sub> being in the range 0 to 100 ppm). ±2% of span (for 0-1000 ppm range, with O <sub>2</sub> being in the range 100 to 1000 ppm). ±2% of span (for 0 to 25% range).
Calibration	1. Atmospheric pressure calibration (between 15 to 25% O <sub>2</sub> ) 2. 1000 ppm standard gas calibration (1000±50 ppm)
Analog output	4-20 mA DC isolated, fixed range (0-1000 ppm or 0-25%), (for 0-25%, 4 mA DC corresponds to 1500 ppm or less).
Contact output	Two outputs, rated 250 V AC, 1 A Hi or Lo alarm, sensor disconnected alarm
Alarm output	High alarm contact output if concentration abnormal Hi or Lo alarm (depending on specification), setting range : 1 ppm to 24.9%
Self-diagnostics	Sensor disconnected
Storage environment	Sensor and converter temperature 0 to 70°C (dew free)
Power supply	100 V AC ±10%, 50/60 Hz, 15 VA
Converter size	96 x 96 x 190 mm

- OX100 measuring principles, measured gas, and system configuration are same as for OX102
- If you want an oxygen (concentration) control range of 1500 to 4500ppm, select the OX102.

### Restrictions

- Can't be used in flammable or exhaust gas, corrosive gas, or organic solvent environment
- To use in an environment with organic silicone, flow furnace, or N<sub>2</sub> reflow furnace:  
(1) Use a sampling unit(K9424GA). Can't use the OX100-1.  
(2) The maintenance requirements (filter and activated charcoal) depend on the measured gas.



Be sure to read the manual and follow the safety precautions in it.

## OX102 Limiting-current type Oxygen Analyzer

Model	Suffix Code	Option Code	Description
OX102	-----	-----	Enhanced Oxygen analyzer
Measuring range	-1	-----	0-100/1000/10,000 ppm / 0-25% O <sub>2</sub>
Sensor	1	-----	With sensor (5 m; sensor assembly. 1m + cable 4 m)
	2	-----	With sensor (10 m; sensor assembly. 1m + cable 9 m)
	3	-----	With sensor (30 m; sensor assembly. 1m + cable 29 m)
	N	-----	Without sensor assembly
Manual	J	-----	Japanese
	E	-----	English
Option code*	/S	-----	Metal sensor holder
	/J	-----	Plastic resin sensor holder

\*Standard Product does not have a sensor holder. To get the sensor holder, specify "/S" or "/J".  
(If using Sampling Unit, the sensor holder is not required.)

## OX100 Limiting-current type Oxygen Analyzer

Model	Suffix Code	Option Code	Description
OX100	-----	-----	General purpose Oxygen Analyzer
Application	-1	-----	Oxygen Analyzer (Can't use an activated carbon filter)*1
	-2	-----	For (N <sub>2</sub> ) reflow furnace
	-3	-----	(Specify in case of using an activated carbon filter)*1 Monitoring for deficiency of Oxygen with low alarm, Measuring range 0-25%
Measuring Range	1	-----	0-1000 ppm / 0-25% O <sub>2</sub>
Power supply	5	-----	100 V AC $\pm$ 10%, 50/60 Hz
Sensor	1	-----	Sensor assy. cable 3m + extension 2m
	N	-----	Without sensor assembly
Manual	J	-----	Japanese
	E	-----	English

L9811LA plastic resin sensor holder is provided as standard accessory.

\*1 For measurement in the range of 1500 to 4500 ppm, use the OX102.

## Sampling unit, Calibration kit

Part No.	Description
K9424GA	Sampling unit
K9424JA	Calibration kit: Six 1-liter gas cylinder, gas outlet cock (with flow adjuster)
K9424JB	Calibration kit: Six 1-liter gas cylinder, gas outlet cock (without flow adjuster)

## Accessories

Part No.	Description
K9424GY	Activated charcoal element, five per pack: for sampling unit
K9424JC	Gas outlet cock (with flow adjuster): qty. one
K9424JD	Gas outlet cock (without flow adjuster): qty. one
K9424JP	Standard gas cylinder ( 1000 ppm O <sub>2</sub> /N <sub>2</sub> ) : qty. six
K9424BA	Sensor assy. cable 3 m for OX100 only
K9424CA	Extension cable, 2 m: for OX100 only
B9877BA	Bracket for mounting OX100, two per set.
K9424LA	Sensor assy. One per set : for OX102 only
K9424LB	Extension cable, 4 m: for OX102 only
K9424LC	Extension cable, 9 m: for OX102 only
K9424LD	Extension cable, 29 m: for OX102 only
K9424DB	Sensor holder (metal) for OX100 or OX102
L9811LA	Sensor holder (plastic) for OX100 or OX102

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**YOKOGAWA ELECTRIC CORPORATION**  
**World Headquarters**  
 9-32 Nakacho 2-chome, Musashino-shi,  
 Tokyo 180-8750, JAPAN  
 Tel: +81-422-52-6316 Fax: +81-422-52-6619  
<http://www.yokogawa.com/an/>

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Represented by:

Vig-PMK-G-NL-10E

Printed in Japan, 107(KP) [Ed : 05/b]