Limiting-current type Oxygen Analyzer

OX100, OX102

- 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)
A Compact Environmental Oxygen Analyzer with the usual Yokogawa reliability

**Enhanced Oxygen Analyzer**

- **MODEL OX102**
  - **Applications**
  - Liow range 0 to 100 ppm
  - Autoranging in four ranges from 0 to 100 ppm to 0 to 25%
  - High and Low Alarms

**Usage cautions**
- Box is to be filled with inert gas
- If organic solvents in box, use sampling unit
- Use sampling unit if organic solvents present
- Use OX102 with Hi/Lo Alarms, or OX100-3 (Lo)
- High temperatures, so use metal nipple K9424DB
- Use sampling unit, remove alcohol / flux from furnace

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

**Main applications**
- N2 reflow furnaces
- Semiconductor maker environmental monitoring
- Monitoring purity of N2, Ar separated from air
- Monitoring for deficiency of O2

**Applications**
- Globe box (processing crystal parts)
- Globe box (in research lab.)
- N2 reflow furnace / auto soldering
- Clean room
- Aging machine
- Monitoring for deficiency of O2

**Foodstuffs**
- 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. (%)
- **Environment:** Oxygen about 500 ppm in N2
- **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.

**General-Purpose Oxygen Analyzer**

- **MODEL OX100**
  - **Applications**
  - Development lab, globe box
  - Clean room for testing, environment, fermentation, biochemical
  - Continuous monitoring of gas flow in food packing

**Usage cautions**
- Space 1000 ppm to 25%
- Autoranging in two ranges, 0-1000 ppm and 0-25%
- High Alarm or Low Alarm (depends on specification)

**Main applications**
- Globe box (processing crystal parts)
- Globe box (in research lab.)
- N2 reflow furnace / auto soldering
- Clean room
- Aging machine
- Monitoring for deficiency of O2

**Foodstuffs**
- Measurement cautions
  - 1: Sensor should not be exposed to silicone vapor, silicon gas.
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**Example:** Measuring oxygen concentration in welding furnace
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OX100 EXTERNAL DIMENSIONS

Convertor

Unit : mm

Panel thickness

Bracket (Parts : B9877BA)

Panel cut dimension

Min. space for multiple installation

Weight : Approx 0.6kg

*: Allow the minimum clearance of 115mm for removable installation.

Other instrument

Sensor

Unit : mm

Nipple (Part no. L881T1A)

Sensor Assembly (Part no. K96216A)

Temp. 250°C max.

Temp. 150°C when metal nipple (option code "15" or P/N K9424/DE) is used.

Temp. 70°C max.

Temp. 76°C max.

Other instrument

Extrion cable

Part no. K9424/CA

(45)

(10)

(16.5)

(515)

(26)

(35)

(23)

(28)

(50)
### OX102 EXTERNAL DIMENSIONS

**Convertor**

Unit: mm

**Sensor**

Unit: mm

**Panel cut dimension**

- 89 *
- 89 °

**Min. space for multiple installation**

- 55
- 100
- 100 *

*: Allow a minimum distance of 115mm for ease of removal.

**Other instrument**

- 81
- 41

**Temperature**

- Temp. 250°C Max.
- Temp. 150°C Max.
- Temp. 70°C Max.

- *: Max temp. 70°C when plastic nipple (option code "J" or P/N L9811LA) is used.

**Sensor External Dimension**

**Model Code**

<table>
<thead>
<tr>
<th>Model Code</th>
<th>L (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OX102-11</td>
<td>4</td>
</tr>
<tr>
<td>OX102-12</td>
<td>9</td>
</tr>
<tr>
<td>OX102-13</td>
<td>29</td>
</tr>
</tbody>
</table>

**Weight**: Approx 1.2kg
**Sampling Unit (K9424GA)**

- **Sample inlet (Rc 1/4)**
- **Sample outlet (Rc 1/4)**
- **Power line connector**
- **Activated carbon filter**
- **Flowmeter**
- **Sensor**
- **Needle valve**
- **Pressure gauge**
- **Capillary**

**Calibration Kit (K9424JA, JB)**

- **Gas vent tube**
- **Pressure gauge**
- **OX100/OX102 Sensor**
- **K9424JC NEEDLE VALVE ASSY With Pressure gauge and Capillary**
- **1/8 Rc Piping connection for K9242JD**
- **Standard gas cylinder**

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**Operating conditions:**
- Atmospheric pressure,
- gas temperature 0 to 40°C
- Mounting Rc 1/4
- Power 100-240 V AC

**Measurement gas inlet Sensor**

1. Membrane filter: removes dust / mist / flux
2. Pump 100-240 V AC, 1.2A
3. Activated charcoal, membrane filter: remove organic solvents
4. Flow meter: 0.1 to 1 liters / min.

**Calibration gas cylinder (K9424JPC)**
- Gas outlet cock + Qty. 6, one Calibration gas cylinder
- 210 x 75 x 335 mm, approx 800 g.

**Sampling unit (K9424GA)**

- 215 x 272 x 140 (mm), approx 4.8kg

**Calibration kit (K9424JA, JB)**

- 1000 ppm O2/N2
- Quantity 6, one Calibration gas cylinder
- 210 x 75 x 335 mm, approx 800 g.
OX102 Standard Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>OX102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meas. principle</td>
<td>Limiting-current type</td>
</tr>
<tr>
<td>Sampling</td>
<td>Natural diffusion</td>
</tr>
<tr>
<td>Sample gas condition</td>
<td>Temperature 0 - 70°C, Humidity 0 - 80% RH (dew free), Pressure 1013 ± 40 hPa (Abs)</td>
</tr>
<tr>
<td>Measured gas</td>
<td>O₂ in N₂ or mixed gases; cannot be used with silicone vapor, combustible gases or organic solvents</td>
</tr>
<tr>
<td>Mounting</td>
<td>Indoor, panel mounting</td>
</tr>
<tr>
<td>Meas. ranges</td>
<td>0-100 ppm / 0-1000 ppm / 0-10000 ppm / 0-25%, automatic / fixed switching mode</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±5% of span (for 0-1000 ppm range, with O₂ being in the range 0 to 100 ppm). ±2% of span (for 0-1000 ppm range, with O₂ being in the range 100 to 1000 ppm). ±2% of span (for 0 to 25% range)</td>
</tr>
<tr>
<td>Calibration</td>
<td>1. Atmospheric pressure calibration (between 15 to 25% O₂) 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</td>
</tr>
<tr>
<td>Fine tune mode</td>
<td>The measuring value can be adjusted to true analyzed value.</td>
</tr>
<tr>
<td>Analog output</td>
<td>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</td>
</tr>
<tr>
<td>Contact output</td>
<td>Two outputs, rated 110 V AC, 24 V DC, 1 A  Hi or Lo alarm, sensor disconnected alarm</td>
</tr>
<tr>
<td>Alarm output</td>
<td>Hi or Lo alarm. setting range : 1 ppm to 24.9%</td>
</tr>
<tr>
<td>Self-diagnostics</td>
<td>Sensor disconnected</td>
</tr>
<tr>
<td>Storage environment</td>
<td>Sensor and converter temperature 0 to 70°C (dew free)</td>
</tr>
<tr>
<td>Power supply</td>
<td>100-240V AC ±10%, 50/60Hz 15VA</td>
</tr>
<tr>
<td>Converter size</td>
<td>96 x 96 x 190 mm</td>
</tr>
</tbody>
</table>

OX100 Standard Specifications

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</tr>
<tr>
<td>Mounting</td>
<td>Indoor, panel mounting</td>
</tr>
<tr>
<td>Meas. ranges</td>
<td>0 to 1000 ppm, 0 to 25% (measuring range autoswitching)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±5% of span (for 0-1000 ppm range, with O₂ being in the range 0 to 100 ppm). ±2% of span (for 0-1000 ppm range, with O₂ being in the range 100 to 1000 ppm). ±2% of span (for 0 to 25% range)</td>
</tr>
<tr>
<td>Calibration</td>
<td>1. Atmospheric pressure calibration (between 15 to 25% O₂) 2. 1000 ppm standard gas calibration (950±50 ppm)</td>
</tr>
<tr>
<td>Analog output</td>
<td>4-20 mA DC isolated, fixed range (0-100 ppm or 0-25%), (for 0-25%, 4 mA DC corresponds to 1500 ppm or less).</td>
</tr>
<tr>
<td>Contact output</td>
<td>Two outputs, rated 250 V AC, 1 A  Hi or Lo alarm, sensor disconnected alarm</td>
</tr>
<tr>
<td>Alarm output</td>
<td>High alarm contact output if concentration abnormal Hi or Lo alarm (depending on specification), setting range : 1 ppm to 24.9%</td>
</tr>
<tr>
<td>Self-diagnostics</td>
<td>Sensor disconnected</td>
</tr>
<tr>
<td>Storage environment</td>
<td>Sensor and converter temperature 0 to 70°C (dew free)</td>
</tr>
<tr>
<td>Power supply</td>
<td>100 V AC ±10%, 50/60 Hz, 15 VA</td>
</tr>
<tr>
<td>Converter size</td>
<td>96 x 96 x 190 mm</td>
</tr>
</tbody>
</table>

- 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.
## OX102 Limiting-current type Oxygen Analyzer

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OX102</td>
<td>-</td>
<td>-1</td>
<td>Enhanced Oxygen analyzer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Measuring range 0-100/1000/10,000 ppm / 0-25% O₂</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>With sensor (5 m; sensor assembly. 1m + cable 4 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>With sensor (10 m; sensor assembly. 1m + cable 9 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>With sensor (30 m; sensor assembly. 1m + cable 29 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Without sensor assembly</td>
</tr>
</tbody>
</table>

### Sensor

<table>
<thead>
<tr>
<th>Manual</th>
<th>Option code*</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>/S</td>
</tr>
<tr>
<td>E</td>
<td>/J</td>
</tr>
</tbody>
</table>

*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.)

### Manual

<table>
<thead>
<tr>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Part No.

- **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)
- **K9424SY**: 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 O₂/N₂): qty. six
- **K9424BA**: Sensor assy. cable 3 m for OX100 only
- **K9424CA**: Extension cable, 2 m: for OX100 only
- **K9427BA**: 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**: 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.**
  - **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.**
  - **K9424SY**: 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 O₂/N₂): qty. six
  - **K9424BA**: Sensor assy. cable 3 m for OX100 only
  - **K9424CA**: Extension cable, 2 m: for OX100 only
  - **K9427BA**: 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