

## Oxygen sensor module

## FCX-M Data sheet

## ■ Features

- High accuracy
- Long life (More than 3 years in normal air) \*1
- Continues calibration and maintenance not required \*2
- Calibration gas not required
- From ppm to 95%O<sub>2</sub>, wide measurement range
- No interference to media
- No pressure dependence

## ■ Applications

- Oxygen concentrator
- Nitrogen purifier
- Alarm for oxygen shortage
- Culture oven or Incubator
- Food packaging, preservation & logistics
- Combustion control
- Soldering system



## ■ Specifications

| Item                  | Unit            | FCX                                                                            |                                                                              |                                                          |                        |                       |                                                                      |
|-----------------------|-----------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------|------------------------|-----------------------|----------------------------------------------------------------------|
|                       |                 | -MP-F-AC                                                                       | -MQ-F-AC                                                                     | -MV-F-AC<br>-MV-F-AC                                     | -MW-F-AC<br>-MW-F-AC   | -MWGP-2A-F            | -MEP2-F<br>-MEP2-F-AC                                                |
| Measurement range     | %O <sub>2</sub> | 50~1000 *3                                                                     | 0.05~1.0 %O <sub>2</sub>                                                     | 0.1~25 %O <sub>2</sub>                                   | 0.1~95 %O <sub>2</sub> | 75~95 %O <sub>2</sub> | 0.1~25 %O <sub>2</sub>                                               |
| Accuracy              | %FS             | ±5.0                                                                           |                                                                              | ±1.0                                                     | ±0.5                   | ±2.0                  | ±1.0                                                                 |
| Response time *4      | secs.           | 90                                                                             |                                                                              | 30                                                       |                        |                       |                                                                      |
| Output                | mV              | 50~1000 mV                                                                     |                                                                              | 0~250 mV                                                 | 1~2700 mV              | 1235~2700 mV          | 4~20 *5                                                              |
|                       |                 | $= \frac{999.5 \times 10^3}{\ln \left[ 1 - \frac{O_2\%}{10^6} \right]} \times$ | $= \frac{99.5 \times 10^3}{\ln \left[ 1 - \frac{O_2\%}{100} \right]} \times$ | $= -891 \times \ln \left[ 1 - \frac{O_2\%}{100} \right]$ |                        |                       | $= \frac{-57 \times}{\ln \left[ 1 - \frac{O_2\%}{10^6} \right]} + 4$ |
| Power supply *6       | VDC             | 5±0.2                                                                          |                                                                              |                                                          | 5+0.1/-0.25            |                       | 12±3                                                                 |
| Power consumption     | W               | 5                                                                              |                                                                              |                                                          | 4                      |                       | 3                                                                    |
| Operating temperature | °C              | -10~50                                                                         |                                                                              |                                                          | 0~60                   |                       | -10~50                                                               |
| Operating humidity *7 | %RH             | 0~85                                                                           |                                                                              |                                                          |                        |                       |                                                                      |
| Dimensions(wXhXl)     | mm              | 50 x 16 x 104                                                                  |                                                                              |                                                          | 80 x 23 x 80/40        |                       | 45 x 20 x 52                                                         |
| Weight                | grams           | 65                                                                             |                                                                              |                                                          |                        |                       | 40                                                                   |

| Item                  | Unit            | FCX                    |                        |
|-----------------------|-----------------|------------------------|------------------------|
|                       |                 | -MVL-F<br>-MVL-F-AC    | -MWL-F<br>-MWL-F-AC    |
| Measurement range     | %O <sub>2</sub> | 0.1~25 %O <sub>2</sub> | 0.1~95 %O <sub>2</sub> |
| Accuracy              | %FS             | ±1.0                   | ±0.5                   |
| Response time *4      | secs.           | 30                     |                        |
| Output                | mV              | 1~250 mV               | 1~950 mV               |
|                       |                 | $= 10 \times O_2\%$    |                        |
| Power supply *6       | VDC             | 5±0.2                  |                        |
| Power consumption     | W               | 5                      |                        |
| Operating temperature | °C              | -10~50                 |                        |
| Operating humidity *7 | %RH             | 0~85                   |                        |
| Dimensions(wXhXl)     | mm              | 50 x 38 x 104          |                        |
| Weight                | grams           | 120                    |                        |

\*1: Depends on operating environment.

\*2: Annual calibration or maintenance still recommended.

\*3: ppm

\*4: From 10 to 90% step change.

\*5: mA

\*6: Regulated DC power supply. The current capacity must be 1A.

\*7: Without vapour condensation.

Note ; Please read above instructions before using the sensor.  
Fujikura reserves right to change specifications without notice.

If you have any questions regarding technical issues or specifications,  
please contact us.

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## Instruction for use ;

- Sensor modules are calibrated with N<sub>2</sub>-O<sub>2</sub> balance gases. Other gases may affect the sensor performance by increase errors.
- Do NOT separate the sensing element from the circuit board and lead wires length must be remained unchanged.
- Do NOT use in harsh environmental conditions containing halogen atoms(F,Cl,Br) , SO<sub>x</sub> ,Nox or H<sub>2</sub>S which make the sensor inferior in a short time.
- Flammable gases ,such as H<sub>2</sub> ,CO ,methane or Alcohol make a big error. And please note that the temperature at the sensing part goes up to 450 degrees C during the operation, which may exceed the flash point and cause explosion.
- Silicone gas or vapour including Siloxane also make the sensor inferior in a short time.
- Dust or oil mist cause failures of the products, errors or a slow response. They must be eliminated with a filter.
- Water drop's contact may give a damage to sensor. It must be eliminated with a filter.
- Temperature at the sensor mesh surface reach 50~80 degrees C during operation. Please take precautions against burning yourself.
- A strong shock such as drop may cut internal wires or break the sensor pellet which is made of ceramic. Do NOT apply a shock of 10G or more to the sensor.
- The warranty period is one year from the ex-factory date. This warranty does NOT apply to the sensors as follows ;
  - There are any defects to faults caused by an improper dealing during the transportation after Fujikura has delivered the sensor to place where the buyer had instructed.
  - There are any defects or faults caused by the buyer's misuses ,abuse or neglect.
  - The buyer fixed or remake the sensors.
  - There are any identical or consequential damages which are given in the usage.
  - There are any defects or faults caused by natural disasters such as life ,earthquake, flood or thunder.
- Fujikura's oxygen sensors are NOT developed ,designed ,manufactured ,sold ,intended or authorized for use as components in systems intended for the surgical implant into the body ,other applications intended to support or sustain life ,fail-safe applications in which the failures ,breakages or where misused of the sensors could create a situation where personal injury or death ,explosion or fire ,or serious social damage may occur. Fujikura and its subcontractors and distributors accept NO responsibility the buyer's selection and use of Fujikura's oxygen sensors without Fujikura's written approval in any such unintended or unauthorized and situation where personal injury or death ,explosion or fire ,or serious social damage may occur.
- A fail-safe design is strongly required when customers use the sensor in medical applications or alarm systems for oxygen shortage even except above.

"Tsunagu" Technology  
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