

Preface

Thank you for purchasing our DSW-100-CO2, Indoor CO2 Sensor.


This manual contains instructions for installation and handling of the DSW-100-CO2. To ensure safe and correct use, thoroughly read and understand this manual before using this sensor. To prevent accidents arising from the misuse of this sensor, please ensure the operator receives this manual.

Notes

- This sensor should be used in accordance with the specifications described in the manual. If it is not used according to the specifications, it may malfunction or cause a fire.
- Be sure to follow all of the warnings, cautions and notices. If they are not observed, serious injury or malfunction may occur.
- The contents of this instruction manual are subject to change without notice.
- Care has been taken to assure that the contents of this instruction manual are correct, but if there are any doubts, mistakes or questions, please inform our sales department.
- This sensor is designed to be used in close proximity to the measurement target. Measures must be taken to ensure that the operator cannot touch power terminals or other high voltage sections.
- Any unauthorized transfer or copying of this document, in part or in whole, is prohibited.
- Shinko Technos Co., Ltd. is not liable for any damage or secondary damage(s) incurred as a result of using this product, including any indirect damage.

Safety Precautions (Be sure to read these precautions before using our products.)

The safety precautions are classified into 2 categories: "Warning" and "Caution".

Depending on the circumstances, procedures indicated by  Caution may cause serious results, so be sure to follow the directions for usage.

Warning

Procedures which may lead to dangerous conditions and cause death or serious injury, if not carried out properly.

Caution

Procedures which may lead to dangerous conditions and cause superficial to medium injury or physical damage or may degrade or damage the product, if not carried out properly.

Warning

- To prevent an electric shock or fire, only Shinko or other qualified service personnel may handle the inner assembly.
- To prevent an electric shock, fire or damage to the instrument, parts replacement may only be undertaken by Shinko or other qualified service personnel.

SAFETY PRECAUTIONS

- To ensure safe and correct use, thoroughly read and understand this manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after purpose-of-use consultation with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protective equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Also proper periodic maintenance is required.
- This instrument must be used under the conditions and environment described in this manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.

Caution with respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument.

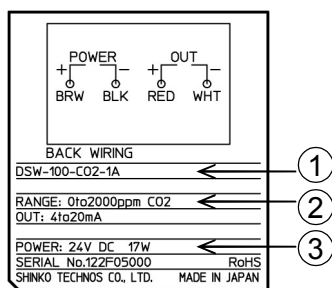
In the case of resale, ensure that this instrument is not illegally exported.

1. Model

1.1 Model

Model	Measurement Range	Output
DSW-100-CO2-1A	0 to 2000 ppm	4 to 20 mA DC
DSW-100-CO2-1V		1 to 5 V DC
DSW-100-CO2-2A	0 to 5000 ppm	4 to 20 mA DC
DSW-100-CO2-2V		1 to 5 V DC
DSW-100-CO2-3A	0 to 10000 ppm	4 to 20 mA DC
DSW-100-CO2-3V		1 to 5 V DC

1.2 How to Read the Model Label



Model label is attached to the inside of the case.

- ①: Model
- ②: Measurement range, Output
- ③: Supply voltage, Power consumption, Serial number

(Fig. 1.2-1)

2. Mounting

⚠ Caution

Turn the power supply to the sensor OFF before wiring. Wiring with the power switched ON may result in malfunction.

Installation site should be examined, giving careful consideration to the following conditions.

This sensor is for interior use only. Do not install outside.

[This instrument is intended to be used under the following environmental conditions.]

- Free air flow
- A minimum of dust, and an absence of corrosive gases
- No flammable, explosive gases
- No mechanical vibrations or shocks
- No exposure to direct sunlight, an ambient temperature of 0 to 50 °C (32 to 122 °F) that does not change rapidly and no icing
- An ambient non-condensing humidity of 5 to 95 %RH
- An absence of chlorinated and sulfidizing gases
- No large capacity electromagnetic switches or cables through which large current is flowing
- No water, oil or chemicals or where the vapors of these substances can come into direct contact with the unit

Inquiries

For any inquiries about this unit, please contact our agency or the vendor where you purchased the unit after checking the model and serial number. Please let us know the details of the malfunction, or discrepancy, and the operating conditions.

SHINKO TECHNOS CO., LTD.

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Maintenance

- Be sure to conduct periodic inspection once within 6 months after installation, then once every year after that.
- Change the sensor if 100 % or more of deviation from effective range of the standard value criteria (e.g. 400 ppm \pm 150 ppm) occurs.
- Change the sensor if no output occurs.

(1) Fixing the Mounting Plate

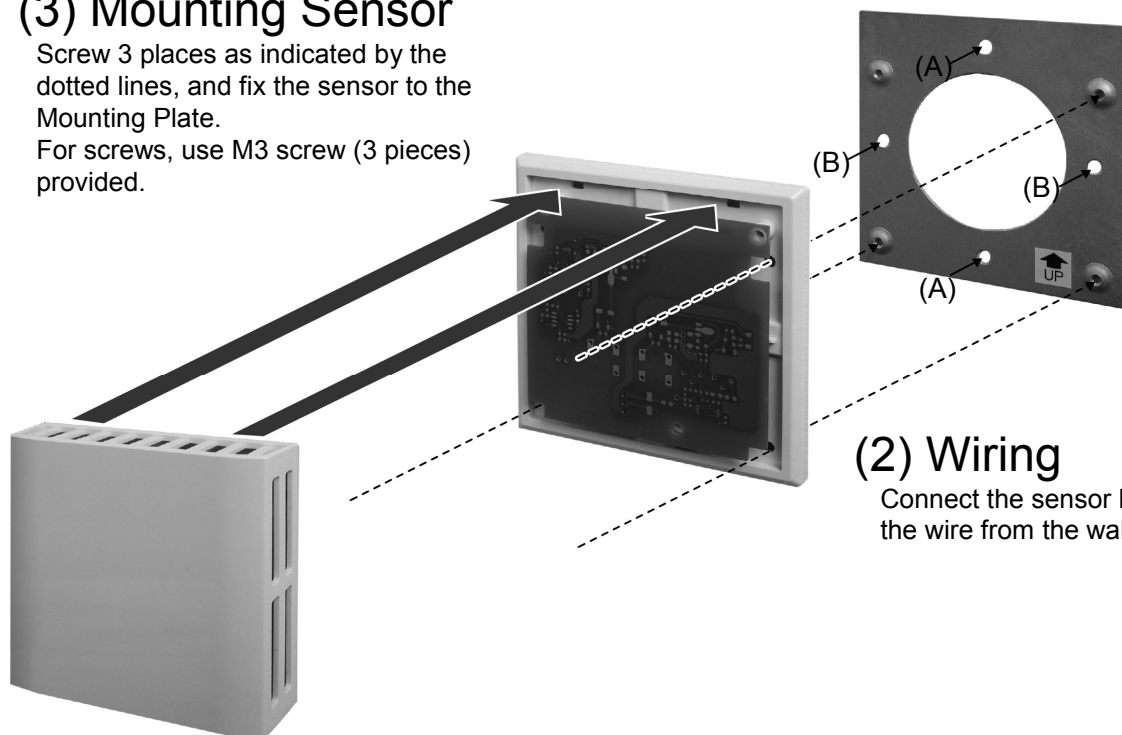
Screw either (A) or (B), and fix the Mounting Plate to the outlet box, via outlet box cover located inside the wall.

For screws, use M4 screw (2 pieces) and spring washer provided.

(3) Mounting Sensor

Screw 3 places as indicated by the dotted lines, and fix the sensor to the Mounting Plate.

For screws, use M3 screw (3 pieces) provided.



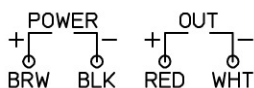
(2) Wiring

Connect the sensor lead wire and the wire from the wall side.

(4) Fitting Sensor Cover

Insert the sensor cover protrusion (2 places) into the cover mounting holes (2 places) located on the upper part of the sensor main unit, then fit the cover to the sensor main unit.

3. Wiring



(Fig. 3-1)

Lead Wire Color	Lead Wire Type	
BRW: Brown	+	Power supply
BLK: Black	-	
RED: Red	+	Output
WHT: White	-	

4. Specifications

Measurement Range	0 to 2000 ppm, 0 to 5000 ppm, 0 to 10000 ppm (must be specified.)					
Output	4 to 20 mA DC: Maximum allowable load: 500 Ω or less 1 to 5 V DC: Maximum allowable load: 100 k Ω or more (must be specified.)					
Supply Voltage	24 V DC \pm 10 %					
Measurement Method	Non dispersive infrared (NDIR)					
Mounting	To the outlet box (inside wall), via outlet box cover: Mounting dimension: 66.7 mm (JIS-C8340: 1999). (JIS: Japan Industrial Standards)					
Material	Flame-resistant PC resin, Color: White					
Wiring	Lead wire: 300 mm, Cross-section: 0.5 mm ² , See "3. Wiring" for details.					
External Dimensions	W90 x H90 x D32 mm (excluding lead wire) 					
Weight	Approx. 100 g					
Performance	<table border="1"> <tr> <td>Accuracy</td> <td>0 to 2000 ppm: \pm30 ppm (\pm5 % of indicated value) 0 to 5000 ppm: \pm30 ppm (\pm5 % of indicated value) 0 to 10000 ppm: \pm30 ppm (\pm5 % of indicated value)</td> </tr> <tr> <td>Response characteristics</td> <td>Within 30 seconds (Varies depending on the air flow of measurement environment.)</td> </tr> </table>		Accuracy	0 to 2000 ppm: \pm 30 ppm (\pm 5 % of indicated value) 0 to 5000 ppm: \pm 30 ppm (\pm 5 % of indicated value) 0 to 10000 ppm: \pm 30 ppm (\pm 5 % of indicated value)	Response characteristics	Within 30 seconds (Varies depending on the air flow of measurement environment.)
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Response characteristics	Within 30 seconds (Varies depending on the air flow of measurement environment.)					
Power Consumption	17 W					
Operating Environment	Temperature: 0 to 50 $^{\circ}$ C Humidity: 0 to 95 %RH (non-condensing) [Caution] Do not use this sensor in an environment where dew condensation occurs. Do not use this sensor in an environment where chlorinated and sulfidizing gases are being generated.					
Storage Environment	Temperature: -30 to 60 $^{\circ}$ C Humidity: 0 to 95 %RH (non-condensing) [Caution] Do not apply sustained pressure or shock to the cavity (gold-colored section) when handling (installing or storing) the sensor. If the sensor is exposed to a temperature lower than 0 $^{\circ}$ C or higher than (and including) 40 $^{\circ}$ C for several hours, sensor measurement value will be affected. If the sensor is stored at high humidity (90 % or more) over a long period without power supplied, the initial measurement value may become slightly high until the humidity inside the cavity disappears.					
Insulation Resistance	Between Case - Output: 500 M Ω or more, at 500 V DC					
Dielectric Strength	Between Case - Output: 1.5 kV for 1 minute, 3 mA or less					
Accessories	Sensor main unit mounting screw: M3 x 4 (3 pieces) Mounting Plate, Mounting Plate screw: M4 x 8 (2 pieces), Spring washer (2 pieces) Instruction manual: 1 copy					
Environmental Specification	RoHS directive conformance					