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SENKO CO.,LTD



SI-100C
Fixed Gas Detector

Explosion-proof Diffusion Type Fixed Gas Detector
USER MANUAL

⚠WARNING

Read this manual carefully before using the instrument. The instrument will perform as designed only if it is used and maintained in accordance with the manufacturer's instruction. Otherwise, it could fail to perform as designed and persons who rely on this instrument for their safety could sustain serious personal injury or death.

This manual contains operating instructions for stationary gas monitoring instruments designed for area air quality and safety applications, and should be STUDIED CAREFULLY by all persons responsible for the operation and maintenance of the instruments.

All SENKO equipment described herein is designed or manufactured for use only as set forth herein and by the labels affixed, or other literature accompanying the product.

Where WARNINGS or CAUTIONS are herein set forth, they must be followed.

If SENKO equipment is used in a manner or under conditions not specifically authorized or prescribed by this manual, or by other materials or written instructions either accompanying the product or authorized by SENKO in writing, or if it is used or maintained by unqualified or improperly trained personnel, SENKO Co., Ltd. disclaims all responsibility of every kind for said equipment.

While basic connection installation instructions are included, all equipment must be installed by qualified personnel. FOLLOWING ALL ASPECTS OF THE LOCAL CODE REQUIREMENTS.

Also, the instruments must be calibrated and alarms tested periodically by trained personnel for proper functioning of the instruments.

CAUTION: The overall system, especially where gas monitoring sensors are used, must be CALIBRATED BY QUALIFIED PERSONNEL.

Thereafter, a monthly calibration check is recommended to assure reliability and accuracy.

Please call the factory if any problems are encountered.

WARRANTY

SENKO sensors and instruments are designed for area air quality and safety applications. SENKO gas monitoring instruments are provided with a one year warranty.

This warranty covers only defective parts or workmanship in normal use and service. Instruments which fail to function due to factory defect within one year of date of shipment are to be returned to SENKO for warranty repair.

SENKO will determine the nature and responsibility for the defect. In all cases the warranty is limited to the original cost of the equipment. Any misuse of equipment is the customer’s responsibility.

SENKO will either repair or replace (at SENKO’s option) returned instruments subject to the warranty, at no charge. No field service is included in this warranty. For field service requirements please contact SENKO.

This warranty is voided by:
1. Improper application of instrument.
2. Misuse of instrument.

3. Intentional or accidental damaging of instrument.
4. Not returning the sensor to factory for warranty validation.

For any queries regarding warranty repair or replacements, please include the instrument model and serial number in any transmittals to SENKO.

SENKO instruments are supplied with operating and installation manuals and other literature. These are the only source of specific details regarding proper operation and maintenance of the equipment.

These instructions must be carefully read and the precautions followed in detail. Instruments must be calibrated and alarms checked periodically to assure proper equipment operation. Please refer to the manual for details.

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1. Product Overview

1.1. Introduction

SI-100C is a fixed gas detector designed for continuous monitoring of oxygen, toxic gases, and combustible gases in areas where potential gas hazards may occur.

Featuring a compact, LCD-less design, the SI-100C focuses on stable signal transmission and reliable performance, making it ideal for integration with centralized gas detection systems.

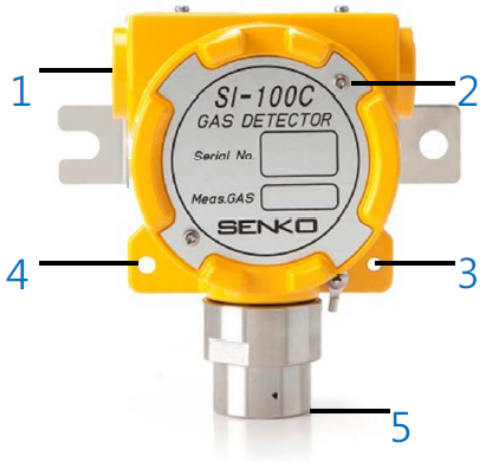
Equipped with a standard 4–20 mA analog output, it can be easily connected to controllers or monitoring panels for real-time gas concentration monitoring.

Its explosion-proof and water-/dust-proof construction ensures dependable operation in harsh industrial environments, including chemical plants, refineries, and various industrial facilities.

The detector supports diffusion-type sensing and a wide range of sensor technologies, including catalytic, infrared (IR), electrochemical, and galvanic sensors, allowing flexible configuration for different gases and applications.

A built-in calibration mode and optional console support simplify maintenance and calibration, helping maintain long-term measurement accuracy and overall system reliability.

1.2. Features



① Inlet for cable (NPT3/4")

② Top case

③ Hole for grounding (M4)

④ Part for installation of the detector (M5)

⑤ Sensor

1.3. Specification

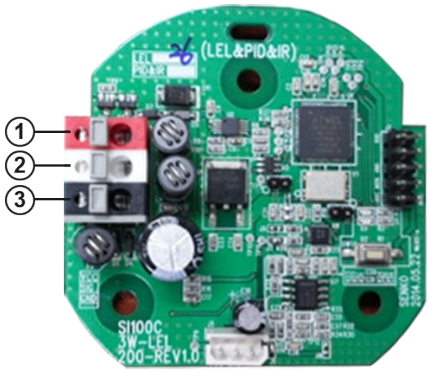
Model	SI-100C			
Detecting	Diffusion Type			
Measuring Gas	Combustible Gas		Toxic Gas	Oxygen
Measuring Method	Catalytic	IR	Electrochemical cell	Galvanic
Accuracy	± 3% / Full Scale			
Alarm	1st alarm, 2nd alarm			
Output Signal	Analog Output:4-20mA			
Cable/ Distance	Analog : 4-20mA/Maximum 2,500m			
Operating Humdity	-20°C ~ 50°C, 5~95% RH (Non-condensing)			
Operating Power	10~30V DC			
Dimensions	101.5(W) X 139.2(H) X 62.5(D)mm, 1.0kg			
Approval	Ex d ⅡC T5, IP65			

1.4. Sensor Specification

Gas	Range	Low	High
O_2	0~30%VOL	19%VOL	23%VOL
CO	0~500PPM	30PPM	60PPM
SO_2	0~20PPM	2PPM	5PPM
H_2	0~1000PPM	100PPM	500PPM
H_2S	0~200PPM	10PPM	15PPM
NH_3	0~100PPM	25PPM	35PPM
LEL(CH_4)	0~100%LEL	20%LEL	40%LEL

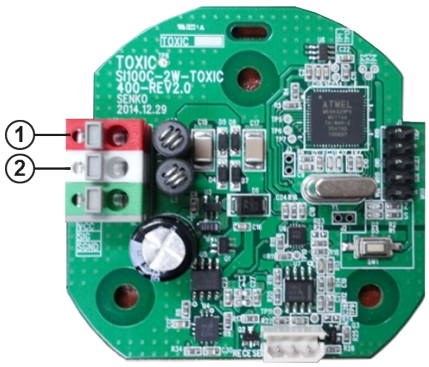
2. Electrical Wiring

3-Wire Sample



PIN	Color	3-Wire
1	Red	Power (+), 24V DC
2	White	4-20mA Signal Output
3	Black	Ground (-)

2-Wire Sample



PIN	Color	3-Wire
1	Red	Power (+), 24V DC
2	White	4-20mA Signal Output

3. Calibration

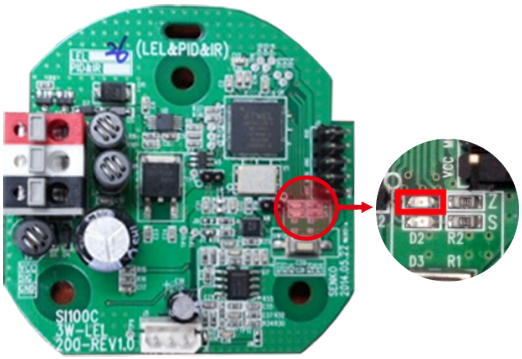
NOTICE

We recommend calibration once every six months, at least once a year. Sensor's output going down as time goes by; measurement error will increase. Calibration is crucial for the sensor performance and persons relying on this product for their safety.

⚠WARNING

Do not Fresh Air Calibration unless you are certain you are in fresh, uncontaminated air; otherwise, inaccurate readings can occur which can false indicate that a hazardous atmosphere is safe. If you have any doubts as to the quality of the surrounding air, do not use the Fresh Air Calibration feature. The calibration check is required to verify span accuracy. Failure to follow this warning can result in serious personal injury or death.

3.1. Zero Calibration

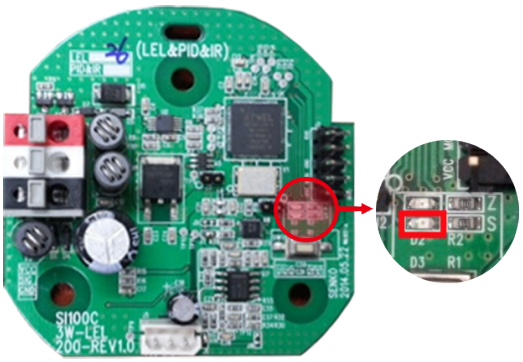
Zero Calibration LED	Button
	

① **Entry to Zero Calibration**
It shows RED light on the LED marked Z when you supplied power to the instrument.

② **Execution of Zero Calibration**
Press the button for more than 3 seconds to execute zero Calibration at the state of lighting on the LED marked Z.

③ **Completion of Zero Calibration**
Zero Calibration proceeds for 3 seconds and will be completed. Processing time of Zero calibration may vary depending on each gas sensor applied. LED marked Z blinks during the process and will be lighted from Z to S repeatedly when it finished.

3.2. Span Calibration

Span Calibration LED	Button
	

① **Entry to Span Calibration**
It shows RED light on the LED marked Z when you supplied power to the instrument.
At this time, press button once to move to Span Calibration mode.
You will be seen the AMBER light on the LED marked S.
It's shifted from Zero(**RED**) to Span(**AMBER**) repeatedly by pressing the button.

② **Execution of Span Calibration**
Prepare and supply the Standard gas into the gas sensor part of the instrument and then press the button for more than 3 seconds to execute Span Calibration at the state of lighting on the LED marked S.

③ **Completion of Span Calibration**
Processing time of Span Calibration vary depending on each sensor applied. LED marked S blinks during the process and will be lighted from S to Z repeatedly when it finished.

3.3. Calibration Gas

	LEL	CO	H_2S	O_2
Max Range	100% LEL	500 ppm	200 ppm	30% Vol
Flow Rate	300 cc/mim	300 cc	300 cc	300 cc
Gas for Calibration				
ZERO	0% LEL	0 ppm	0 ppm	20.9% Vol
SPAN	25% LEL	100 ppm	50 ppm	17.5% Vol
Time Needed for Calibration				
ZERO	at once	at once	at once	120s
SPAN	120s	120s	120s	120s

4. Notice for User

- Please use the instrument in the range of the applicable temperature, humidity and pressure that are appropriate for the specification of the product. Using the instrument beyond this range may cause malfunction or glitch of the instrument.
- Gas concentration measurement value by the sensor or the instrument can vary according to the environment at site (temperature, pressure and humidity). Therefore the calibration of the instrument should be performed at the same or similar environment as that of the instrument use (temperature, pressure and humidity).
- If temperature changes sharply during use of the instrument (for instance, using the instrument at places of far different temperatures between indoor and outdoor), the value of the measured gas concentration can be changed suddenly. Please use it after the gas concentration value is stabilized.
- Severe vibration or shock to the instrument may cause the sudden change of value of the measured gas concentration. Please use it after the value of gas concentration is stabilized. Excessive shock to the unit can lead to trouble of the sensor or the instrument.

5. Certification

5.1. IECEx



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx KTL 22.0031X** Page 1 of 3 Certificate history:

Status: **Current** Issue No: 0

Date of Issue: 2022-10-14

Applicant: **Senko Co., Ltd.**
73, Oesammi-ro, 15beon-gil, Osan-si
Gyeonggi-do, Rep. of Korea
Korea, Republic of

Equipment: **Fixed Gas Detector, SI-100C**

Optional accessory:

Type of Protection: **Flameproof enclosure "d"**

Marking: Ex db IIC T5 Gb
Ta = -20 °C to +55 °C

Approved for issue on behalf of the IECEx Certification Body: **Park, Jong-koo**

Position: **Certification Manager**

Signature: (for printed version)

Date: (for printed version) 2022-10-14

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code

Certificate issued by:

Korea Testing Laboratory
87, Digital-ro, 26-gil, Guro-gu
Seoul
Korea, Republic of

5.2. ATEX

KR HELLAS LTD.
41, Athinas Av., Vouliagmeni,
GR-16671, Athens, Greece

TEL: +30-210-428-6736
FAX: +30-210-428-6728

Certificate No:
KRH 22 ATEX 1033X
Issue Number: 0
Date of initial issue: 2022-12-29
Date of reissue: -
Page: 1/3

EU-TYPE EXAMINATION CERTIFICATE

2. Equipment and Protective systems intended for use in potentially explosive atmospheres:
Directive 2014/34/EU
3. EU-Type Examination Certificate Number: **KRH 22 ATEX 1033X**
4. Equipment or protective system: **Fixed Gas Detector Type SI-100C**
5. Manufacturer: **Senko Co., Ltd.**
6. Address: **73, Oesammi-ro, 15beon-gil, Osan-si, Gyeonggi-do, Republic of Korea**
7. This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
8. The KRH certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive 2014/34/EU of 26 February 2014.
The examination and test results are recorded in the confidential report listed in section 16.
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0:2018 **EN 60079-1:2014**
10. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
11. This EU-Type Examination Certificate relates only to the design and construction of the specified equipment or protective system in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacturing process and supply of this equipment or protective systems. These are not covered by this certificate.
12. The marking of the equipment or protective system shall include the following:
Ex II 2 G Ex db IIC T5 Gb

This certificate is issued at Athens on 2022-12-29, under the authority of the Hellenic Republic of Greece by KR Hellas Ltd., Notified Body No. 2198.

Dr. Nikos Katiforis
Quality Manager of KR Hellas Ltd

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