INNOBIZ Venture for Tomorrow CE SPK Ex 0575 DNV PG

**Better Safety, Better Life,
Challenge, Innovation**

Human beings, Environment and
Technology in harmony

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SENKO
SenKo Co., Ltd

CEO Message

Though our country, Korea has an excellent competitiveness based on the technology even in the global endless competition days, the dependence on the advanced countries is a as high as what it could be said to be technically governed in the gas sensor and gas saefty equipment industry.

The gas sensor technology which could create the high additional value grafting with another industries, is one of the porspective technology which are growing very fast, as the environment and safety are being highly concerned.

Senko Co., Ltd had developed sensors of the carbon monoxide, hydrogen sulfide by our own technology, starting the oxygen sensor, We had also developed to produce the gas safety equipment and its

system such as the portable gas detector in the industrial field.

We have been doing our best to localize the Korean domestic market which dominated by foreign countries'products as well as to develop the oversea market.
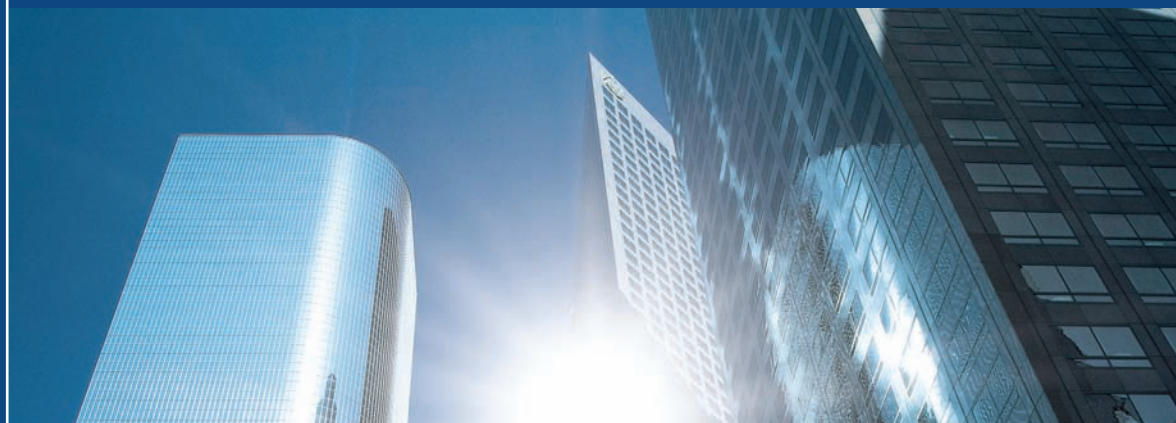
We will do our every possible efforts to be together wherever with our customer and surely stand based on the venture enterprise spirit in the industrial safety gas equipment area which the domestic enterprise never concerned, We are trying to develop the more efficient, convenient products for the customers, using the new technology as well as the conventional gas safety equipment.

We will establish the strategic partnership with the excellent institute/enterprise who have the technical competitiveness in another industries We will be born again to focus to develop the new product of the high additional value technically fused through the co-research based on this partnership.

Being one family based on the mutual trust to become the world wide company, we will found the business culture which all staffs could do our best. We promise to show our customers our efforts to do our best for the customer satisfaction. Please watch us with the friendly warm view.

Thanks.

SENKO C.E.O **HA SEUNG CHUL**

Contents

Portable Single Gas Detector
⫶ SP2nd

Explication and Features

SP2nd is an economical gas detector that can be operated continuously for two years without replacement of gas sensor to protect workers from the disasters caused by the oxygen deficiency or toxic gas poisoning. Measure one gas continuously and display its concentration and raise an alarm when a risk occurs.

SP 2nd

FRONT VIEW   SIDE VIEW

Adapter
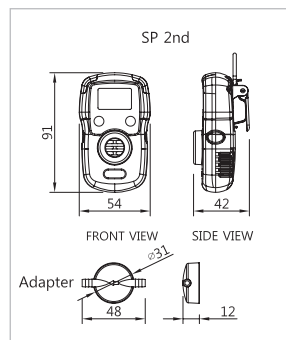
– Rubber material case for the shock protection
– The excellent water proof/dust proof structure
– High performance audible, visual, vibration alarm
– Setting 1st, 2nd alarm
– Automatic checking of the sensor trouble
– Data logging
– Disposable type (Under develoment)

Specification

MODEL	SP2217	SP2227	SP2257	SP2277	SP2297	SP22L7	SP22N7	SP22C7
Detecting Gas	O_2	CO	SO_2	H_2	H_2S	Cl_2	NH_3	NO_2
Detecting Range	0~30%	0~500ppm	0~20ppm	0~1000ppm	0~100ppm	0~20ppm	0~100ppm	0~20ppm
Lifetime(sensor)	24 mth	24 mth	24 mth	24 mth	24 mth	24 mth	24 mth	24 mth
Response Time(T90)	Winthin 15sec.	Winthin 30sec.	Winthin 25sec.	Winthin 75sec.	Winthin 30sec.	Winthin 40sec.	Winthin 60sec.	Winthin 40sec.
Sensor Type	Electrochemical							
Detecting Method	Diffusion type							
Display	Digital LCD (Built in back light)							
Audible Alarm	90 dBA							
Visual Alarm	Red LED & White back light							
Vibrator Alarm	Vibrator (Rated Speed : 6,000 ±1,000RPM)							
Power	CR2 Lithium Battery 3V – 1ea							
Operating temp. & Humi.	−20℃ ~ +50℃ / 5% ~ 95% RH (non −condensing)							
Explosion proof	Ex ia IIC T4 IP67 (KGS, ATEX)							
Case	Clear polycarbonate with thermal−plasticelastic (TPE) over mold.							
Contents	Calibration Cap, Manual, Certificate of Inspection							
Option	Sampling Pump (SP-pump101)							
Dimension	54(W) x 91(H) x 32(D)mm , Weight : 120g(with battery)							

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine
▶ Power supply works
▶ Hermetically sealed area (manhole, tank)

Portable Multi Gas Detector
⫶ SP12C7

Explication and Features

SP12C7 is an united gas detector measuring four (4) major gases, which result the most of the industrial accidents, to protect workers from the disasters caused by the oxygen deficiency , toxic gas poisoning and gas explosion. Measure continuously four (4) gases (O_2 , CO, H_2S and Combustible Gas(CH_4)) and display their concentrations and raise an alarm when the risk occurs.

SP12C7

FRONT VIEW   SIDE VIEW

Adapter
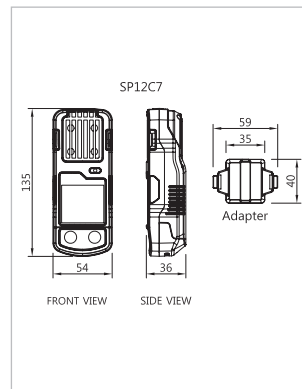
– Simultaneously check 4 different gases (methane, oxygen, carbon monoxide, hydrogen sulfide)
– Explosive proof structure for the safety
– Rubber material case for the shock protection
– External pump and probe installation
– Automatic light on when alarming
– Both rechargeable battery and alkaline battery are compatible
– The excellent water proof/dust proof structure
– Data logging

Specification

MODEL	SP12C7			
Detecting Gas	O_2	CO	H_2S	Combustible Gas
Detecting Range	0~30%	0~500ppm	0~100ppm	0~100% LEL
Lifetime(sensor)	24 mth	24 mth	24 mth	12 mth
Sensor Type	Electrochemical	Electrochemical	Electrochemical	Catalytic
Response Time(T90)	Winthin 15sec.	Winthin 30sec.	Winthin 30sec.	Winthin 10sec.
Detecting Method	Diffusion type			
Display	Digital LCD (Built in back light)			
Audible Alarm	90 dBA			
Visual Alarm	Red LED & White back light			
Vibrator Alarm	Vibrator (Rated Speed : 6,000 ±1,000RPM)			
Power	Rechargeable NI−MH battery pack , Alkaline battery 2ea			
Operating time	About 9 hours			
Operating temp. & Humi.	−20℃ ~ +50℃ / 5% ~ 95% RH (non −condensing)			
Explosion proof	Ex iad IIC T4 IP67 (KGS)			
Case	Clear polycarbonate with thermal−plastic elastic(TPE) over mold			
Contents	Calibration Cap, Charger, Alkaline Battery pack, Wrench, Manual, Certificate of Inspection			
Option	Sampling Pump (SP−pump101)			
Dimension	54(W) x 135(H) x 36.5 (D)mm , Weight : 240g			

Applications
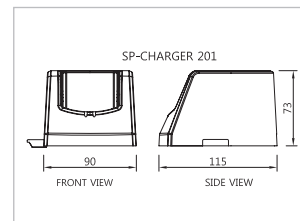
▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine
▶ Power supply works
▶ Hermetically sealed area (manhole, tank)

Charger
⫶ SP-Charger201

Explication and Features

SP− charger 201 is provided with SP12C7 as a basic package

SP-CHARGER 201

FRONT VIEW   SIDE VIEW

– The handy stationary charger
– With one electric sources, several chargers can be used simultaneously
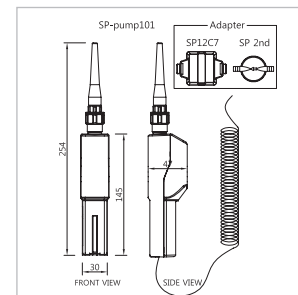– Electric source and charging status LED

Instruction Of Use

Sampling Pump
⫶ SP-Pump101

Explication and Features

Sampling pump is designed to be used by connecting to SP12C7 and SP2nd model. This can be used to check if there is gas leakage when measure the gas underground manhole.

SP−pump101   Adapter   SP12C7   SP 2nd

FRONT VIEW   SIDE VIEW

– Simple structure to install locking
– Excellently durable industrial pump installed
– Automatic checking of chocking

Instruction Of Use

Specification

Power	AA size Alkaline battery 1ea
Operating time	More than 10 hours
Operating temp. & Humi.	−20℃~+50℃ / 5%~95% RH(non-condensing)
Sampling flowrate	Minimum : 300cc/min
Self Checking	Low flow alarm, Low battery alarm (Red LED)
Dimensions	34(W) × 270(H) × 47 (D)mm
Weight	200g (with battery)

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine
▶ Power supply works
▶ Hermetically sealed area (manhole, tank)

Portable Gas Leak Detector
⫶ SP secure

Explication and Features

SP secure is designed to be suitable for leak detection of any gas piping and valves by equipping a built-in sampling pump. Since the measured gas concentration is displayed in digital number, accurate measurement is possible.

SP secure

FRONT VIEW   SIDE VIEW
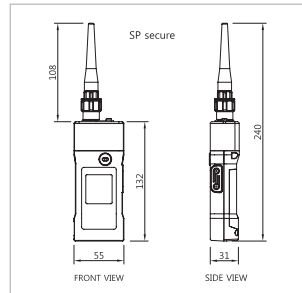
- Sampling pump built in structure
- The digital concentration display
- Detector for the gas leakage
- Both rechargeable battery and alkaline battery are compatible
- Adopt the sensor which detect the low concentrated
- Rechargeable battery is compatible with
- Data logging

Specification

| MODEL	SP Secure LEL	SP Secure H₂	SP Secure Xylene	CO₂ / Ethylene
Detecting Gas	LNG, LPG	H₂	Xylene	
Detecting Range	0~100%LEL	0~1,000ppm	0~100%LEL	
Lifetime(sensor)	12mth	24mth	60mth	Please Contact Us
Sensor Type	Catalytic	Electrochemical	IR	
Detecting Method	Built-in Sampling Pump			
Response Time(T₉₀)	Winthin 10 sec.	Winthin 60 sec.	Winthin 90 sec.	
Resolution	1%LEL	1ppm	1%LEL	
Display	LCD display (Alarm, Buzzer, Pump On, Battery, Backlight)			
Alarm	Buzzer alarm and LCD display			
Gas Concen-tration Display	0~100%LEL (Digital Bar / Numerical Display)			
Explosion Proof	Ex d ia IIB T3 (KGS)			
Operation Temp.	-20℃ ~ +50℃			
Power	AA Alkaline battery 3ea, Recharger NI-MH 3ea			
Operation Time	Depend on sensors, 12~24 hours			
Flow Rate	Minimum : 300cc/min			
Dimension/Weight	55(W) x 241(H) x 33(D)mm / 260g			
Standard Accessories	Protection Cover, Adapter For Charge			

Applications

▶ Steelworks   ▶ Petrochemical plant   ▶ Shipbuilding yard
▶ Sewage treatment plant   ▶ Mine   ▶ Power supply works
▶ Hermetically sealed area(manhole, tank)

Fixed Gas Detector
⫶ SI-100

Explication and Features

SI-100 is a fixed gas detector installed in a place where potential gas hazard exists to measure oxygen, toxic gas and combustible gas.
It shows not only the concentration of gas but also diagnostic result of the unit itself through the LCD display and can be connected to the controller with a standard 4-20mA analog output communication or RS-485 digital communication.
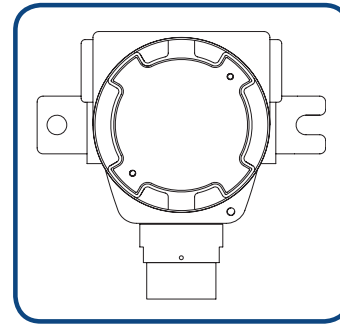

SI-100

FRONT VIEW   SIDE VIEW
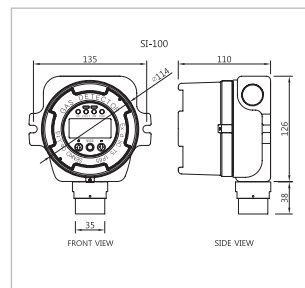
- SI-100 measures the concentration of the flammable gas, toxic gas, oxygen and display with LCD
- Easy magnetic bar operation
- Big digital LCD installed with a blue backlight
- Explosive proof structure
- Water/dust proof structure
- Simple gas calibration

Specification

MODEL	SI-100		
Detecting gas	Combustible Gas	Toxic Gas	Oxygen
Detecting range	0~100% LEL	0~100% LEL	Refer to Sensor List	0~30% Vol
Sensor type	Catalytic	IR	Electrochemical	Electrochemical
Detecting Method	Diffusion type		
Display	LCD display (Built in back light)		
Accuracy	±3% / Full Scale		
Setting & Control	Magnetic interface to configure alarm & calibrations		
Response time(T₉₀)	Within 10sec	Within 30sec	Refer to Sensor List	Within 15sec
Alarm signal	1st alarm, 2nd alarm, Relay contact (2 x 5A @30V DC)		
Output signal	4 – 20mA · CVVSB1.5 x 3Wire		
Communication	RS-485 Modbus · UL2919 (24AWG) 1pair		
Telemetering line length	Analog output MAX. 2,500m, Digital output MAX. 1,000m		
Operating temp. & Humi.	-20℃ ~ +50℃ / 5% ~ 95% RH (non –condensing)		
Power	10~30V DC (Consumption: ≤ 500mW)		
Dimensions	150(W) × 165(H) × 110(D)mm, Weight : 1.8 kg		
Explosion Proof	Ex d IIC T5, IP65 (KTL)		
Material	Aluminium, Stainless Steel (STS304)		
Installation	Pipe or Wall		

Applications

▶ Steelworks   ▶ Mine
▶ Petrochemical plant   ▶ Power supply works
▶ Shipbuilding yard   ▶ Hermetically sealed area (manhole, tank)
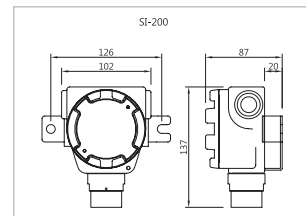▶ Sewage treatment plant

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Fixed Gas Detector (No Display)
⫶ SI-200

Explication and Features

SI-200 is a fixed gas detector installed in a place where potential gas hazard exists to measure oxygen, toxic gas and combustible gas without LCD display.
It can be connected to the controller with a standard 4-20mA analog outputs.

SI-200

- Explosive proof structure
- Water/dust proof structure
- 4-20mA Analog outputs
- Built-in Calibration Mode

Specification

MODEL	SI-200		
Detecting gas	Combustible Gas	Toxic Gas	Oxygen
Detecting range	0~100% LEL	0~100% LEL	Refer to Sensor List	0~30% Vol
Sensor type	Catalytic	IR	Electrochemical	Electrochemical
Detecting Method	Diffusion Type		
Accuracy	±3% / Full Scale		
Setting & Control	Internal S/W Control (Calibration , Setting, Etc)		
Response time(T₉₀)	Within 10sec	Within 30sec	Refer to Sensor List	Within 15sec
Output signal	4 – 20mA · Cable : CVVSB1.5 x 3Wire or 2Wire		
Telemetering Line Length	Max 2,500m		
Operating temp. & Humi.	-20℃ ~ +50℃ / 5% ~ 95% RH (non –condensing)		
Power	10~30V DC (Consumption: ≤ 500mW)		
Dimensions	126(W) × 137(H) × 87(D)mm, Weight : 1.3 kg		
Explosion Proof	Ex d IIC T5, IP65 (KTL)		
Material	Aluminium, Stainless Steel (STS304)		
Installation	Pipe or Wall		

Applications

▶ Steelworks   ▶ Mine
▶ Petrochemical plant   ▶ Power supply works
▶ Shipbuilding yard   ▶ Hermetically sealed area (manhole, tank)
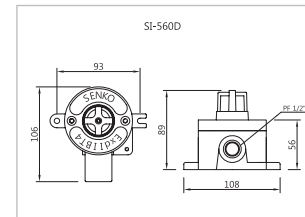▶ Sewage treatment plant

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Gas Leak Detector
⫶ SI-560D-S

Explication and Features

SI-560 SET is a gas detector for detecting oxygen, toxic gas and combustible gas. SI-560 SET is consisted of a detector and a receiver. This is used to detect gas leaks in the pipe or valve.
SI-560 SET is a low-priced entry-level products.

SI-560D

■ Fixed Detector
- Explosion proof structure
- Long distance communication with 4~20mA analog output
- Built-in calibration mode
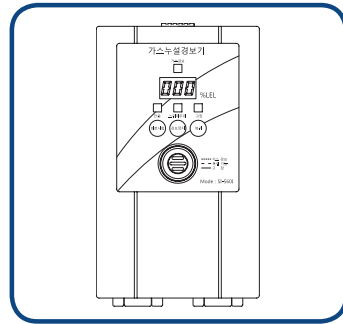- Convenient installation

Specification

MODEL	SI-560D-S		
Detecting gas	Combustible Gas	Toxic Gas	Oxygen
Detecting range	0~100% LEL	0~100% LEL	Refer to sensor List	0~30% Vol
Sensor type	Catalytic	IR	Electrochemical	Electrochemical
Detecting Method	Diffusion type		
Accuracy	±3% / Full Scale		
Setting & Control	Internal S/W Control (Calibration , Setting, Etc)		
Response time(T₉₀)	Within 10sec	Within 30sec	Refer to Sensor List	Within 15sec
Output signal	4 – 20mA · Cable : CVVSB1.5 x 3Wire or 2Wire		
Telemetering Line Length	Max 2,500m		
Operating temp. & Humi.	-20℃ ~ +50℃ / 5% ~ 95% RH (non –condensing)		
Power	10~30V DC		
Dimensions	93(W) × 106(H) × 89(D)mm, Weight : 0.6 kg		
Explosion Proof	Ex d IIB T4 (KTL)		
Material	Aluminium, Stainless Steel (STS304)		
Installation	Pipe or Wall		

Applications

▶ Steelworks   ▶ Mine
▶ Petrochemical plant   ▶ Power supply works
▶ Shipbuilding yard   ▶ Hermetically sealed area (manhole, tank)
▶ Sewage treatment plant

Receiver For Gas Leak Detector
:SI-560I

Explication and Features

SI-560 SET is a combustible gas detector that consists of a sensing unit and a receiver. This is used to detect gas leaks in the pipe or valve. SI-560 SET is a low-priced entry-level products.

SI-560I

■ **Receiver SI-560I**

- Simple structure, reasonable price
- Sophisticated design and simple structure
- 3 Colored LED and F.N.D gas concentration display
- Easy zero calibration and built-in calibration mode
- Self test mode
- Displays the number of calibration and sensor efficiency

Specification

Approved from KFI

MODEL	SI-560I
Detecting gas	LNG / LPG (methane / propane / Iso-butane / pentane & etc)
Detecting range	0~100% LEL
Display	3-Digit FND
Alarm Setting Value	15%LEL
Alarm	LED, Buzzer (Gas, Malfunction, Wrong Setting)
Input signal	4~20mA
Output signal	4~20mA , 12V.DC, Dry contact (com, no, nc)
Power	100~240V.AC 50/60Hz (Consumption : 200mA)
Operating temp. & Humi.	-20℃~+50℃ / 5%~95% RH(non-condensing)
Dimensions	120(W) x 200(H) x 51(D)mm

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine

Gas Leak Detector
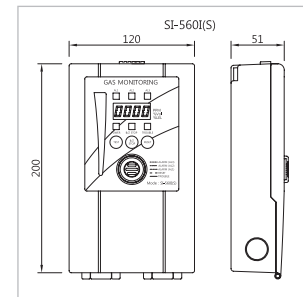## :SI-560D

Explication and Features

SI-560 SET is a combustible gas detector that consists of a sensing unit and a receiver. This is used to detect gas leaks in the pipe or valve. SI-560 SET is a low-priced entry-level products.

SI-560D

■ **Detector SI-560D**

- Explosion proof structure
- Long distance communication with 4~20mA analog output
- Simple structure, reasonable price

Specification

Approved from KFI

MODEL	SI-560D
Detecting gas	LNG / LPG (methane / propane / Iso-butane / pentane & etc)
Detecting range	0~100% LEL
Sensor type	Catalytic
Sampling method	Diffusion type
Response time(T₉₀)	Within 10sec
Accuracy	±3% / Full Scale
Power	10 ~ 30V DC
Output	4 ~ 20mA
Operating temp. & Humi.	-20℃~+50℃ / 5%~95% RH(non-condensing)
Explosion proof	Ex d IIB T4 (KTL)
Dimensions	93(W) x 106(H) x 89(D)mm
Material	Aluminium, Stainless Steel (STS304)
Installation	Pipe or Wall

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine

Special Receiver For Gas Leak Detector(Bar-Graph type)
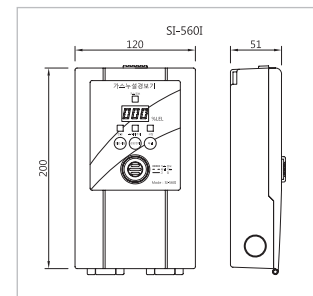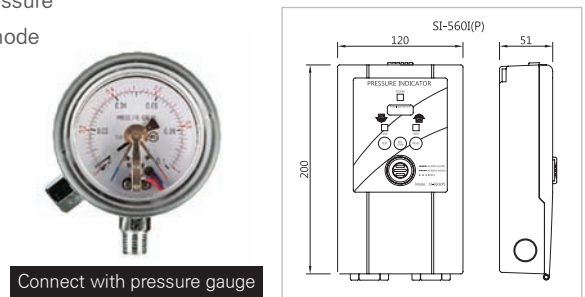## :SI-560I-S

Features

- Sophisticated design and simple structure
- Display using the Bar-Graph depend on alarm steps. (1st, 2nd, 3rd Alarm)
- 3 Colored LED and F.N.D gas concentration display
- Easy zero calibration and built-in calibration mode
- Self test mode
- Display the number of calibrations
- RS-485(Option)

SI-560I(S)

Specification

MODEL	SI-560I-S		
Detecting gas	Combustible Gas	Toxic Gas	Toxic Gas, Oxygen
Detecting range	0~9999 / %LEL	ppm	%Vol, Level (programmable)
Display	4-Digit FND & Bar- Graph		
Alarm Setting Value	1st, 2nd 3rd (Depend on each gases)		
Alarm	LED, Buzzer (Gas, Malfunction, Wrong Setting)		
Input Signal	4 ~ 20mA · Cable : CVVSB1.5 x 3Wire or 2Wire		
Output Signal	4~20mA , 12V.DC, Dry contact (com, no, nc)		
Commucation	RS-485 Modbus · Cable : UL2919 (24AWG) 1pair		
Power	100~240V.AC 50/60Hz (Consumption : 200mA)		
Operating temp. & Humi.	-20℃~+50℃ / 5%~95% RH(non-condensing)		
Dimensions	120(W) x 200(H) x 51(D)mm		

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine

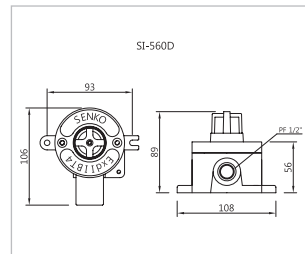## Pressure Notification Receiver Device
:SI-560I-P

Features

- Sophisticated design and simple structure
- Alarm depend on pressure fluctuations
- Low pressure, High pressure Alarm
- Alarm function for returning to normal pressure
- Self test mode

SI-560I(P)

Connect with pressure gauge

Specification

MODEL	SI-560I-P
Detecting Pressure	0 ~ 500 mmH20 ~ 1.2kg, 2. 0 ~ 1000 mmH20, 3. 0 ~ 5000 mmH20, 4. 0 ~ 1Kgf/cm² (Max 10K)
Dispaay	2LED
Alarm Setting Value	Low , High Alarm
Alarm	LED, Buzzer
Input Signal	Dry contact (Low, High)
Output Signal	Dry contact (Low, High) - com, no, nc
Power	100~240V.AC 50/60Hz (Consumption : 200mA)
Operating temp. & Humi.	-20℃~+50℃ / 5%~95% RH(non-condensing)
Dimensions	120(W) x 200(H) x 51(D)mm

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine

Wireless Gas Detector
⋮ SL-101

Wireless Fire Detector
⋮ SP-12F7

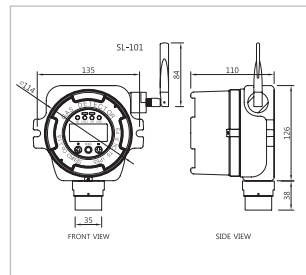## ⋮ GAS SENSOR

Explication and Features

SL-101 is a fixed gas detector installed in a place where potential gas hazard exists to measure oxygen, toxic gas and combustible gas. It hows not only the concentration of gas but also diagnostic result of the unit itself through the LCD display and can be connected to the controller with RF commucation wirelessly.

– Easy to install
– Easy to Adjust the position
– No wiring works of electrical source and communication
– Tracking is possible with its own address
– Maintenance and Replacement are simple

– Easy Installation/removal because no wiring works are required
– Economic system which doesn't require any wiring construction
– Water/Dust proof structure
– Same functions with Fixed Gas Detector working with wiring electrical power source
– Tracking is possible with its own address
– Maintenance and Replacement are simple
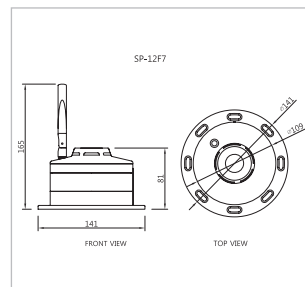
Specification

MODEL	SL-101		
Detecting gas	Combustible Gas	Toxic Gas	Oxygen
Detecting range	0~100% LEL	0~100% LEL	Refer to Sensor List	0~30% Vol
Sensor type	Catalytic	IR	Electrochemical	Electrochemical
Detecting Method	Diffusion type		
Measuring value display	LCD display (Built in back light)		
Accuracy	±3% / Full Scale		
Setting & Control	Setting from control center or site(field)		
Response time(T90)	Within 10sec	Within 30sec	Refer to Sensor List	Within 15sec
Telemetering Line Length	Max 300m		
Communication length among sensor nodes	–20℃ ~ +50℃ / 5% ~ 95% RH (non –condensing)		
Power	3.6V battery 4ea (Consumption : 3mW)_(IR or Catalytic need regular power))		
battery life time	More than 6~12 months		
Radio Frequency	433MHz, 914MHz, 2.45GHzg		
Dimensions	150(W) × 165(H) × 110(D)mm, Weight : 1.8 kg		
Explosion Proof	Ex d IIC T5, IP65 (KTL)		
Material	Aluminium, Stainless Steel (STS304)		
Installation	Pipe or Wall		

Specification

MODEL	SP-12F7
Materials	ABS antifire
Install	Magnetic, Band
Power	1.5V AA Battery 4ea (Size D)
Power part	Separation Type
Detect Method	Diffusion Type(180˚ Full open)
Inlet	Open Concept
Antenna	Dipole Antenna
Dimensions	150(H) x 100(W) x 100(D) mm
Weight	1kg

Applications

▶ Steelworks
▶ Petrochemical plant
▶ Shipbuilding yard
▶ Sewage treatment plant
▶ Mine
▶ Power supply works
▶ Hermetically sealed area (manhole, tank)

■ **Oxygen sensor SS1118 (0~100%)**
– With high concentrated oxygen measuring sensor, only for the Oxygen generator and medical sensor
– Measure the oxygen's pressure in the air

■ **Hydrogen sulfide sensor SS1198**
– Suitable to monitor the petrochemical, oil refining, waste water treatment, drain water treatment, manhole, mining

■ **Oxygen sensor SS2118 (0~30%)**
– As the measuring sensor of the oxygen in the air, suitable for the portable equipment and industrial equipment
– Excellent accuracy and response time

■ **Ammonia sensor SS11N8**
– Suitable to monitor the livestock waste, food decay, ammonia leak, and processes
– Comparing the competitor's product, much faster response

■ **Carbon monoxide sensor SS1128**
– Fire monitoring application for the portable equipment, industrial safety equipment, boiler room, parking place
– Excellent stability of the output signal and little affected by other gases

■ **IR (Infrared) Sensor**
– Gas measuring Sensor only for the flammable gas and carbon dioxide, nitrogen dioxide
– The Infrared sensor which has Very fast response and excellent accuracy can measure the flammable gas in the nonoxygen space

■ **Hydrogen sensor SS1178**
– Suitable to monitor the power plant, hydrogen fuel battery, hydrogen tank, hydrogen leakage and processes
– Minimize the interference on the hydrogen sulfide

Specification

MODEL	SS1118	SS2118	SS1128	SS1198	SS1178	SS11N8	IR Sensor
Detecting Gas	Oxygen	Oxygen	Carbon monoxide	Hydrogen sulfide	Hydrogen	Ammonia	Hydro Carbon, CO₂ etc
Nominal Range	0~100%	0~30%	0~1,000ppm	0~500ppm	0~1,000ppm	0~100ppm	0~5%Vol
Maximum Overload	–	–	2,000ppm	1,000ppm	2,000ppm	200ppm	0~100%
Expected Operating Life (years)	18 month	2	2	2	2	2	5
Output Signa	6.0±1.0mV	90±20μA@ /20.9% Oxygen	60±15nA/ppm	0.60±0.15μA	15±10nA/ppm	100±20nA/ppm	0~2.8V DC
Resolution	0.1%	0.5%	1ppm	0.1ppm	2ppm	1ppm	0.5%
Temperature Range				−20℃~+50℃			
Pressure Range				Atmospheric ±10%			
T90 Response Time	≤15 sec	≤15 sec	≤30 sec	≤30 sec	≤30 sec	<60 sec	≤30 sec
Relative Humidity Range			15~90%RH				0~90%RH
Typical Baseline Range	–	–	−2 to 3ppm	−0.1 to 0.5ppm	0 to 30ppm	0 to 2ppm	0 to 10ppm
Expected Operating Life (years)	–	–	−2 to 3ppm	0.2ppm Equivalent	−20ppm Equivalent	3ppm Equivalent	10ppm Equivalent
Long Term	Less than	Less than	Less than	Less than	Less than	Less than	±1%FSDper
Output Drift	5%/year	5%/year	5%/year	5%/year	5%/month	2%/month	month@20℃
Recommended LoadResistor	–	100Ω	10Ω	10Ω	10Ω	33Ω	–
Bias Voltage	Not required	Not required	Not required	Not required	Not required	Not required	–
Repeatability	2% of signal	2% of signal	2% of signal	2% of signal	2% of signal	10% of signal	–
Output Linearity				Linear			
Weight	7g	18g	6g	6g	6g	4.5g	15g
Position Sensitivity				None			
Storage Life				6 month			
Recommended Storage Temperature				0~20℃			
Warranty Period	1 years	2 years	2 years	2 years	2 years	2 years	2 years

Gas sensor List

※ It is available to order various sensors including below list.

Gas type	Detecting range	Detecting Method	Permissible Standards	LEL(%Vol)	Specific Gravify
O₂	0~30%	Electrochemical	19.5%~23.5%	–	1.11
CO	0~1,000ppm	Electrochemical	25ppm	12.5	0.968
H₂S	0~500ppm	Electrochemical	10ppm	4.3	1.19
SO₂	0~20ppm	Electrochemical	2ppm	–	2.26
H₂	0~1,000ppm	Electrochemical	–	4% Vol	10.07
NH₃	0~50ppm	Electrochemical	25ppm	15	0.6
Cl₂	0~100ppm	Electrochemical	1ppm	–	2.49
HCl	0~30ppm	Electrochemical	5ppm	–	1.27
HCN	0~100ppm	Electrochemical	10ppm	5.6	0.941
O₃	0~2ppm	Electrochemical	0.1ppm	–	1.65
NO	0~1,000ppm	Electrochemical	25ppm	–	1.53
NO₂	0~150ppm	Electrochemical	3pp	–	1.58
PH₃	0~20ppm	Electrochemical	0.3ppm	1	1.18
SiH₄	0~50ppm	Electrochemical	5ppm	1.35	1.11
	0~500ppm up to 0~100% Vol	IR	–	–	1.5
Hydrocarbons	0~100% Vol	IR	–	–	–
C₄H₁₀	0~2% Vol	IR	–	1.86	2
C₂H₄	0~3% Vol	IR	–	3	1
CH₃CH₂OH	0~5% Vol	IR	–	3.6	1.6
C₂H₄	0~3% Vol	IR	–	2.75	1
C₂H₄O	0~3% Vol	IR	–	3	1.5
CH₃(CH₂)₂CH₃	0~1% Vol	IR	–	1.2	3.5
CH₄	0~5% or 0~100% Vol	IR	–	5	0.55
C−H₃Br	0~25,000ppm	IR	–	10	3.3
N₂O	0~1000ppm up to 0~1% Vol	IR	50ppm	–	1.53
C₃H₁₀	0~2% Vol	IR	–	1.5	2.5
CH₃CH₂CH₃	0~2% Vol	IR	–	2.2	1.5

Gas sensor module

∷ SM16X1

Breath CO Monitor

∷ BMC-2000

Explication and Features

Generally, the gas sensor could be divided as 4 kinds such as the electric chemical type, the semi−conductor type, the optic type, the catalytic The application of each sensor type is quite different. It is important to adopt the proper gas sensor depend on the gas type, environmental factor in the using area, sensing range, resolving ability, cost, etc.
Senko Co., Ltd is trying to provide the most proper gas sensor and modules depend on customers' requests, keeping lots of the technology development and Know How related with the gas sensor.

SM16X1

FRONT VIEW   SIDE VIEW
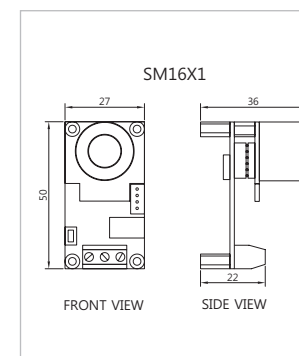
− The carbon dioxide sensor module sequenced with the air conditioner
− The smell sensor module for home appliance (TVOC sensor adopted)
− Hydrogen detecting module for the fuel battery
− Electric sensor transmitter only for the electric chemical sensor type
− Concentrated Oxygen Sensor Modules for the Oxygen Generator
− Concentrated Odor sensor module
− Module related with the electronic nose

Explication and Features

BMC−2000 can be used in smoking cessation programs by healthcare professionals. And it also can be used as a noninvasive method to get %COHb in the patient's blood and to screen CO poisoned patients by medical man. The small size and light weight make the BMC−2000 ideal for hand held use. It is mainly used in smoking cessation clinics; it is used for instructional purposes to check on the client's progress and compliance.

BMC-2000

FRONT VIEW   SIDE VIEW
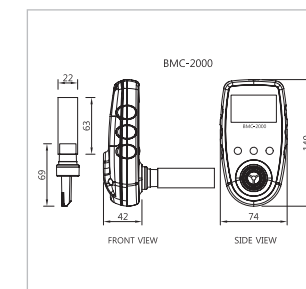
− Non−Invasive method to know how much carbon monoxide(CO) poisoned
− Indirect and simple instrument to measure carboxyhemoglobin(COHb) in blood
− Easy to discriminate smoker
− Easy to recognize the degree of CO poisoning (smoking habit)
− Two language (English, Korean) are provided
− CE certificate of European medical equipment
− Concentration of CO in breath and percentage of COHb in blood are displayed simultaneously
− Adult / Pregnant / Young mode are provided

Specification

Sensor type	Electrochemical	Semiconductor	Optical	Catalytic
Operating temp	−20~50℃	0~60℃	−20~50℃	−30~150℃
Sensitivity	High	High	Medium	Medium
Cost	Expensive	Cheap	Expensive	Medium
Power Consumption	Low	Moderate	Moderate	Moderate
Applications	Industrial safety / Environment	Air Quality	Atmosphere environment analysis	Flammable / Combustible gas
Detecting Gases	O₂ , CO, H₂S, SO₂ etc.	Drunkometer, CO 등	HC, H₂S, SO₂ , O₃ etc.	CH₄ , C₃H₈

Specification

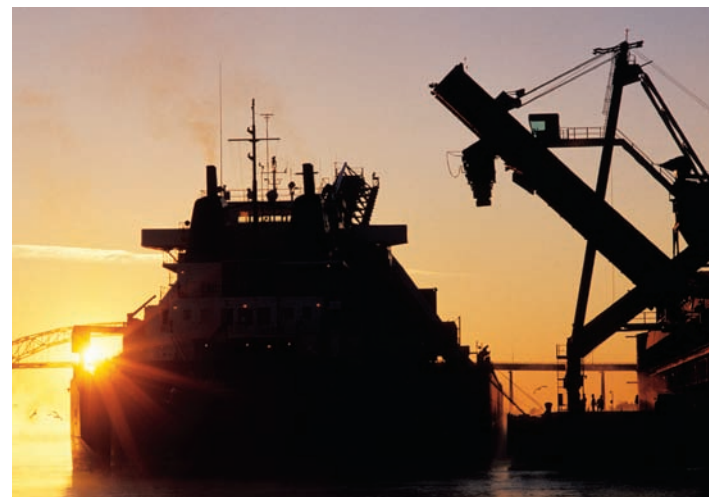| MODEL	BMC−2000
Detecting range	0~99ppm
Sensor type	Electrochemical
Accuracy	±2% or 1ppm / month
Sensor drift	1% / month
Cross sensitivity (Hydrogen)	5~10%
Sensor life time	2 ~ 5 years (max. 5 years)
Resolution	1ppm
Calibration	Zero / span
User mode	Adult / Adolescent
Countdown	15 seconds
Sound	On / Off
Operating Temp. & Humi.	0 ~ 40℃ / 5 ~ 95%
Mouthpiece adapter	D type bacteria filter
LCD size	50x30mm
LED indicator	7 steps (Green/Amber/Red)
COHb%	Display
Power	AAAlkaline battery 2ea
Dimensions	70 × 150 × 32mm
Weight	160g
Disposable mouthpieces	Diameter 22mm

Carbon Monoxide Alarm

Carbon Monoxide Alarm

Explication and Features

What is Carbon Monoxide?

CO is an invisible, odorless poisonous gas that can be fatal when inhaled. It is the number one cause of unintentional poisoning deaths in the Country.

CO is produced when any fuel is incompletely burned because of insufficient oxygen.

Wood fires and charcoal grills produce large amounts of CO.

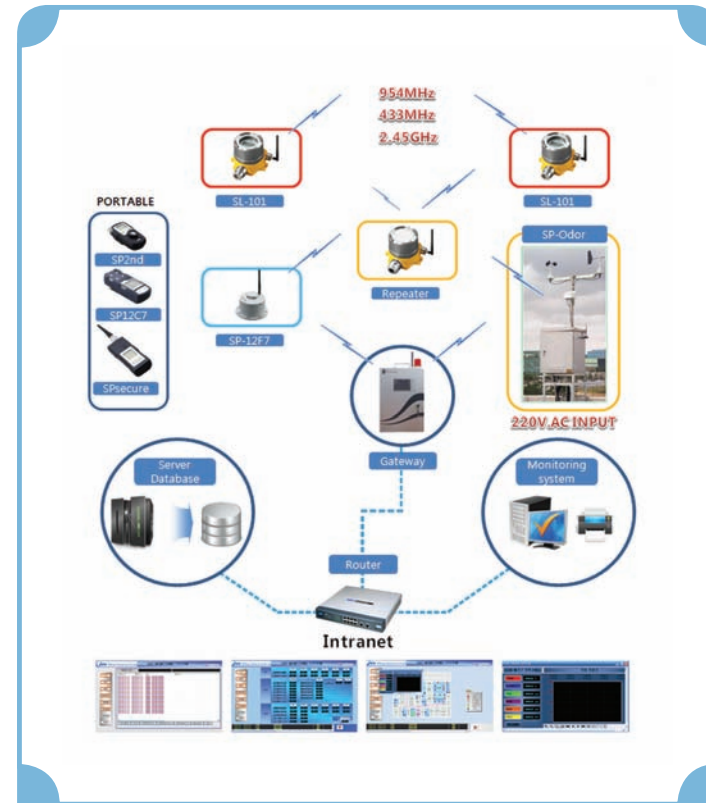Malfunctioning heating systems also produce CO.

Specification

Sensor type	Electrochemical cell
Power	3 –AA Batteries (4.5V)
Alarm Indication	Audible and visual alarm
AudibleAlarm	85decibels(dB) at 10′ (3.05m)
AlarmResponse Times	70 PPM between 60 to 240 min., 150 PPM between 10 to 50 min., 400 PPM between 4 to 15 min. (as required by UL2034)
Alarm Life	5 yearsunder normal operating conditions
Temperature	−20℃～＋50℃
Humidity	−5%～95% RH(non−condensing)
Weight	140g approx.
Dimensions	110 x 70 x 42mm
Test Function	Yes
End of Unit Life Warning	Yes
Low Battery Warning	Yes

Certificates

Business License

Factory Registration Certificate

Foreign Investment Enterprises

Certificate Of Registration

Certificate Of Green Technology

Safety Certificate (SP2nd)

Safety Certificate (SP12C7)

Safety Certificate (SPsecure)

Certificate Of Approval (SI-100)

Declaration Of Conformity(SP2nd)

Declaration Of Conformity(SP12C7)

CE Conformance Report(SPsecure)

ATEX Certificate

Certificate Of China

Certificate Of Russia (Gost-R)

Certificate Of Brazil

CB Test Certificate (SP2nd)
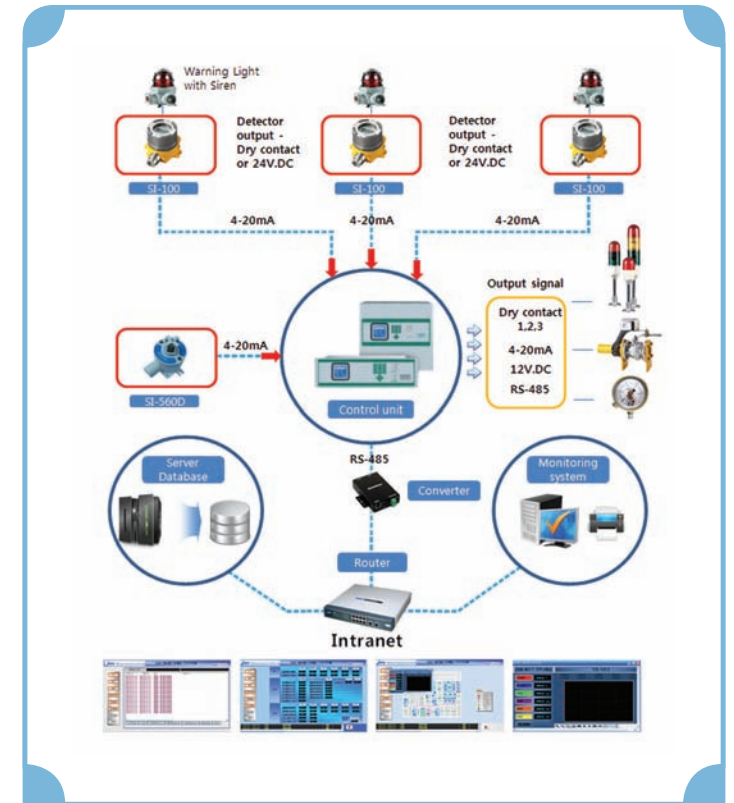

CB Test Certificate (SP12C7)

Monitoring System Configuration

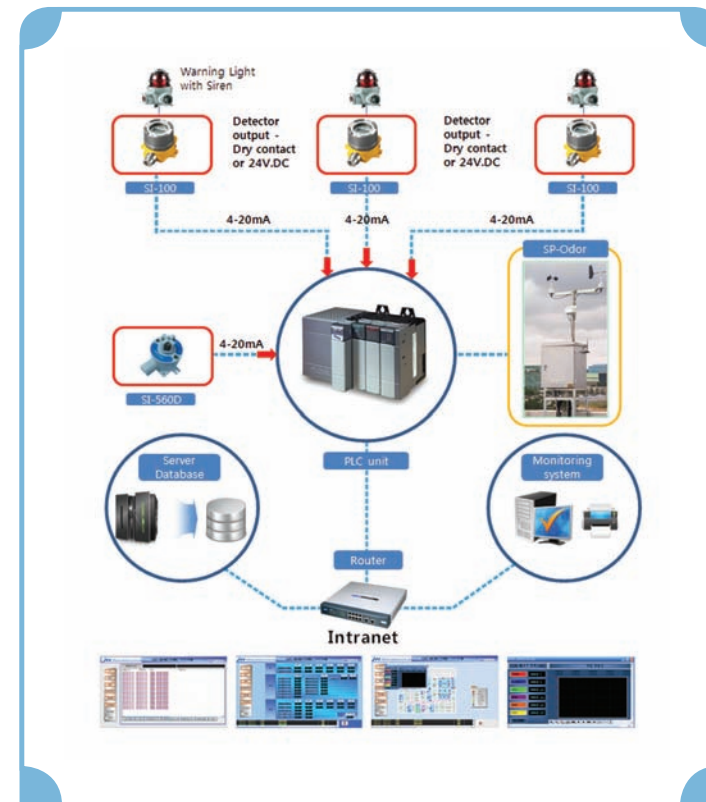### Configuration-1

Configuration-2

Configuration-3

Configuration-4