JDS COMPANY KOREA
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Specification No. S-1808-02

Specification Draft 1

Product name: Electrochemical CO (carbon monoxide) sensor
Model number: EC-570
Customer model number:

Confirmation

Via:

August 31, 2018

Nissha FIS, Inc.

Approved	Confirmed	Created
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Submitted	Copies
Returned	Copies

	Obsoleted number	Issued on	Remarks

Specification (Draft 1)	Nissha FIS, Inc.
Product name: Electrochemical CO sensor	Specification No.
Model number: EC-570 Customer model number:	S-1808-02

1. Contents

Revision history

No.	Date	Contents	By
Draft 1	2018.8.31	Daft 1 Created	T. Ohnishi

2. Scope

This specification applies to electrochemical CO (carbon monoxide) sensor, EC-570.

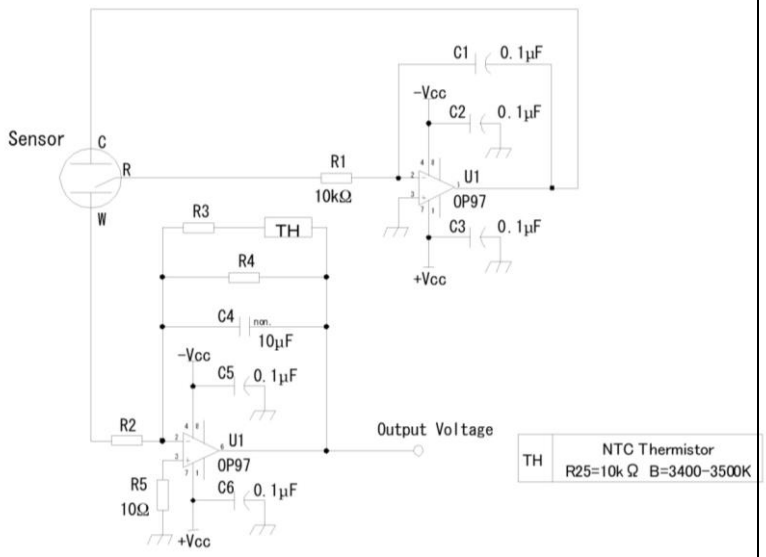
3. Product name/Model number

Product name: Electrochemical CO sensor
Model number: EC-570
Customer model number:

4. Recommended conditions

Parameter	Symbol	Conditions	Remark
Detection concentration range		0 to 5,000 ppm of CO	
Operating temperature and humidity range	T_{op}	-10 to 50C 15 to 90%RH	Without dew condensation
Atmospheric pressure	P	1 atm±10%	
Load resistor	R_L	10ohm±1%	
Bias voltage	V	0mV	
Storage temperature range	T_{ST}	0 to 20C	
Storage period		6 months	In packaging
Mounting direction		Any direction	
Soldering		Edge temperature of soldering iron: Below 350C Soldering time: Below 3 sec per pin Maximum repeated soldering: 2 times after the soldered temperature returns to room temperature.	Hand soldering
Others	Should not be influenced by halogens, organic solvents, etc.		

5. Characteristic measurement conditions

Parameter	Condition	Remark
Temerature and humidity	20±3℃、65±10%RH	
Measurement gas	Clean air	
	Carbon monoxide (purity: more than 99%)	
Circuit	 R2: 10ohm R3: 11.8kohm R4: 17.8kohm TH: NTC thermistor, R25=10kohm, B constant=3435K	Pre-heating time: 5 min.

6. Sensitivity characteristic

	Parameter	Rating	Remark
1	Output current	20±5nA/ppm	CO, 20℃65%RH
2	Base line	±0.2μA	
3	Response	Within 10 sec	T^{90}
4	Repeatability	±2%	
5	Output at -10℃	13nA/ppm	Temporary
6	Output at 50℃	27nA/ppm	Temporary

Note: The above characteristic is based on "4. Recommended conditions" and "5. Characteristic measurement conditions".

7. Mechanical characteristics

No.	Parameter	Contents, conditions	Tentative specifications
1	Tensile strength	Cap's tensile strength	More than 9.8N(1kgf)
2	Vibration	Acceleration: 12.7m/s^2 (1.3G) Frequency range: 5 to 500Hz Changing the sweep: Logarithmic Direction of vibration: 3 dimensions (X, Y, Z) Duration of sweep: 40 minutes Duration: 66 hours of each direction	Should satisfy "6. Sensitivity characteristic"
3	Drop and impact	Free drop from a height of 60cm Floor material: Concrete Number of drops: 3 times	Should satisfy "6. Sensitivity characteristic"

8. Related documents

(1) Sensor drawing: attached
(2) Packaging: Separately specified when mass production starts.
(3) Inspection certificate: Separately specified when mass production starts.

9. Quality assurance

Separately specified when mass production starts.

10.Handling of this specification

This specification shall be exchanged between User and Nissha FIS, Inc.
Other contents than specified in this specification shall be decided through mutual consultation between both parties.
All or a part of this specification shall not be disclosed to any third parties without advance consent of the other party.

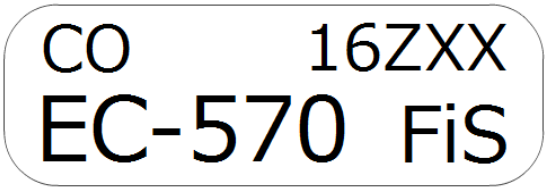
11.Other information

1) Handling notes

- Gas sensitivity measurement should be made under clean air without noise gases.
- Avoid storage at high temperature and low humidity below 30%RH. Store the sensor whose electrode pins should be connected at low temperature and usual humidity.
- If the sensor is left at humidity lower than 30%RH for a long time, store the sensor in the package which is correctly sealed.
- When soldering the sensor, keep the recommended soldering conditions. Avoid reflow soldering and soldering bath.
- Do not apply voltage directly to electrode pins.
- Do not bend pins. Do not apply excess vibration, shock, or load.
- If sensor housing is damaged, do not use the sensor.
- Do not disassemble the sensor. If disassembled, you could be injured by electrolyte leakage.
- Do not blow organic solvents, paints, chemical agents, oils, or high concentration gases onto the sensor.

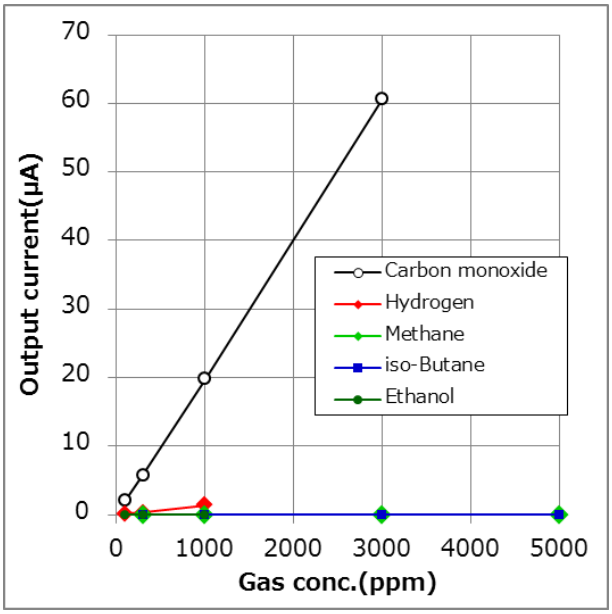
2) Lot number

The label below is put on the side of sensor.
Label contents should be finally specified when mass production starts.

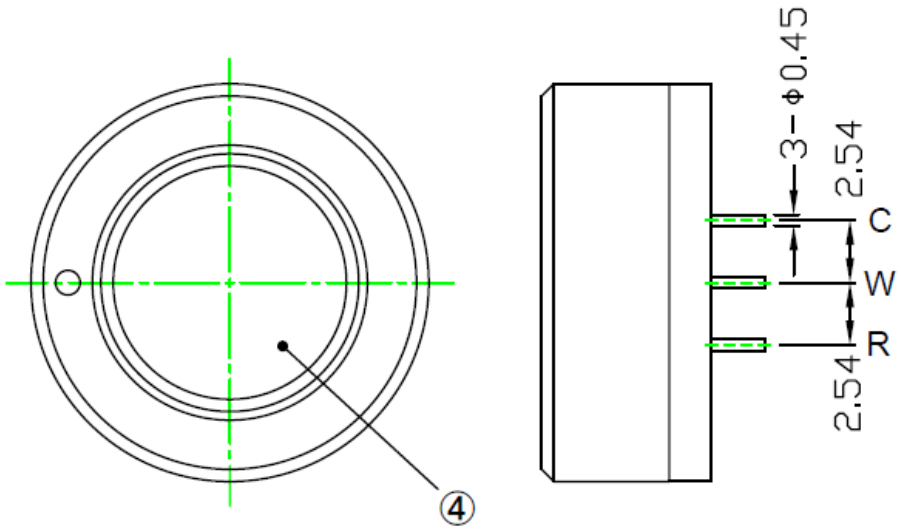


XX：Sensor Number

3) Reference: Sensitivity characteristic



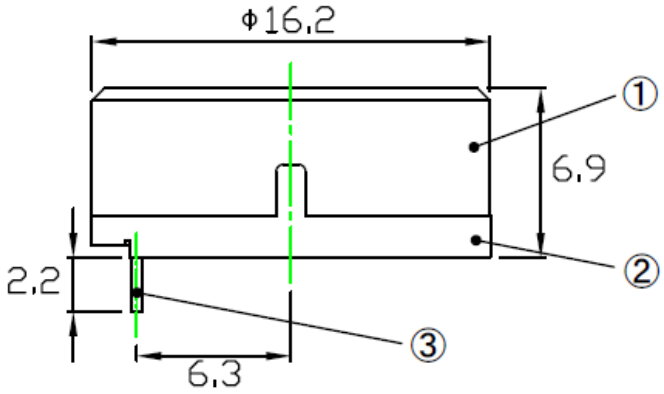
Gas	Concentration (ppm)	Corresponding CO concentration
CO	100	100
H_2	1000	69
Methane	10000	0
Isobutane	10000	0
Ethanol	1000	0



C : Counter electrode

W : Working electrode

R : Reference electrode



No.	Part	Material
①	Cap	ABS
②	Base	PPE
③	Pin	Brass(nickel plated)
④	Filter	Polyester nonwoven fabric/PTFE

3						Material
2						Finish
1						
	Revise		Dwg.By	Appr.By	Date	Parts Name: センサーAssy
Design.By 大西	Date 2017.7.5		UNIT mm	Scale 5/1	Q'ty 1	
Check.By 松本s	Date 2017.7.5					
Appr.By 松本s	Date 2017.7.5					Model: EC-570
Theme # 1632	NISSHAエフアイエス株式会社					Dwg No. / A3