Nemoto Industrial Gas Sensors

- **Catalytic type**

- **Electrochemical type**

●Industrial electrochemical sensor

Model		Detected gas	Remarks
1	NE-CO-BL	CO	Compatible with 4 series sensor of City Tech.
2	NE-CO-P		Flat type, direct soldering
3	NE-H2S	H_2S	Standard type, 0 – 100ppm, 500nA/ppm
4	NE-H2S-100		0 – 100ppm, compatible with City's, 700nA/ppm
5	NE-H2S-200*		0 – 200ppm, 500nA/ppm
6	NE-H2S-500*		0 – 500ppm, 200nA/ppm
7	NE-H2S-P		Flat type, direct soldering, 500nA/ppm
8	NE-NH3	NH_3	Standard type, 0 – 100ppm
9	NE-NH3-1000*		0 – 1,000ppm
10	NE-NH3-5000*		0 – 5,000ppm
11	NE-NO2	NO_2	Standard type, 0 – 20ppm
12	NE-NO2-P		Flat type, direct soldering

* : Since basic characteristics are the same as standard type, detailed information of them are not described one by one in this general information.

●Industrial pellistor

Model		Detected gas	Remarks
1	NC-170	General combustible gases	2.0V – 170mA, matched pair type
2	NC-170S		2.0V – 170mA, single header type
3	NC-300		2.0V – 300mA, matched pair type
4	NC-300S		2.0V – 300mA, single header type
5	NC-180		2.6V – 170mA, matched pair type
6	NC-180S		2.6V – 170mA, single header type
7	NC-180S-H	Hydrogen	1.6V – 140mA, single header type
8	NC-180S-N	Ammonia	2.2V – 150mA, single header type
9	NC-180-H	Hydrogen	1.6V – 140mA, matched pair type
10	NC-180-A	Acetylene	2.0V – 170mA, matched pair type
11	NC-180-N	Ammonia	2.2V – 150mA, matched pair type
12	NC-50S	General combustible gases	4.25V – 50mA, single header type
13	NC-70S		3.0V – 75mA, single header type

NE-CO-BL

NE-CO gas sensor is an industrial type CO gas sensor, and since its signal is larger than domestic type, minimum detection level is lower than domestic type, additionally it is superior on selectivity and resistivity to residential type. And then, since gas response speed is fairly fast, it is in compliance with most of world-widely industrial standards, and it is also applicable for wider fields.

・ Characteristics

Items	Characteristics
Detected gas conc.	CO 0～1500ppm
Output current	95±15nA / ppm of CO
Repeatability	Less than ±2%
Response time	T90:less than 25sec
Zero offset drift	Less than 10ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH

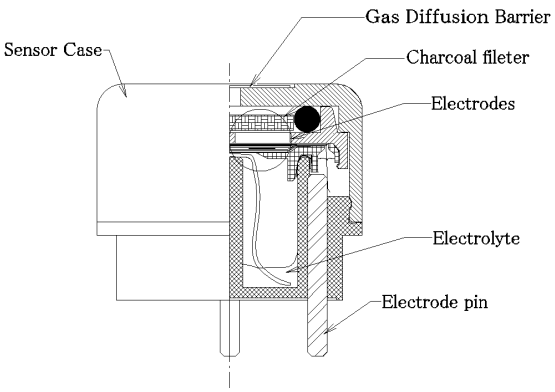


Fig. Structure of NE-CO

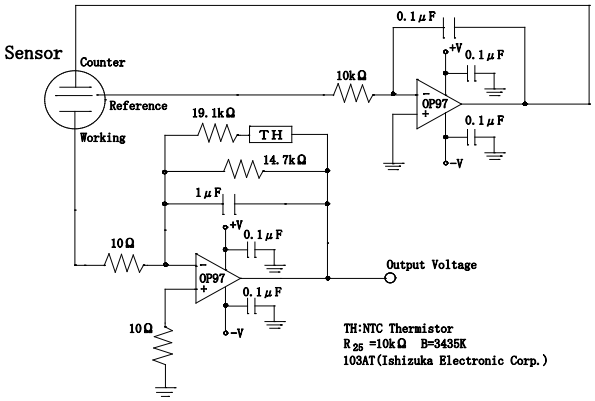
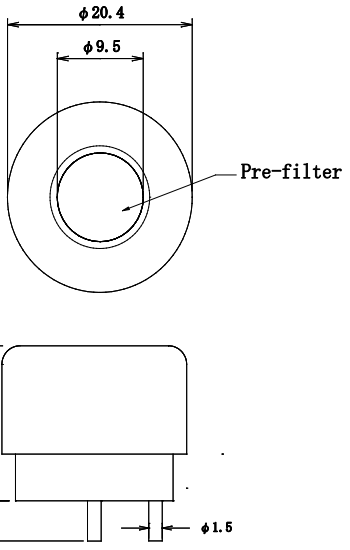
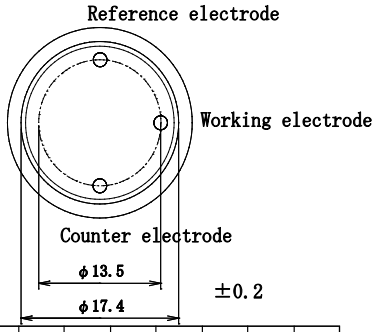


Fig. Recommended circuit diagram





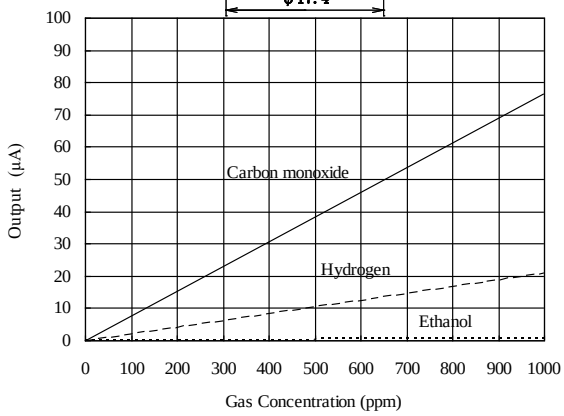


Fig. Gas sensitivity characteristics

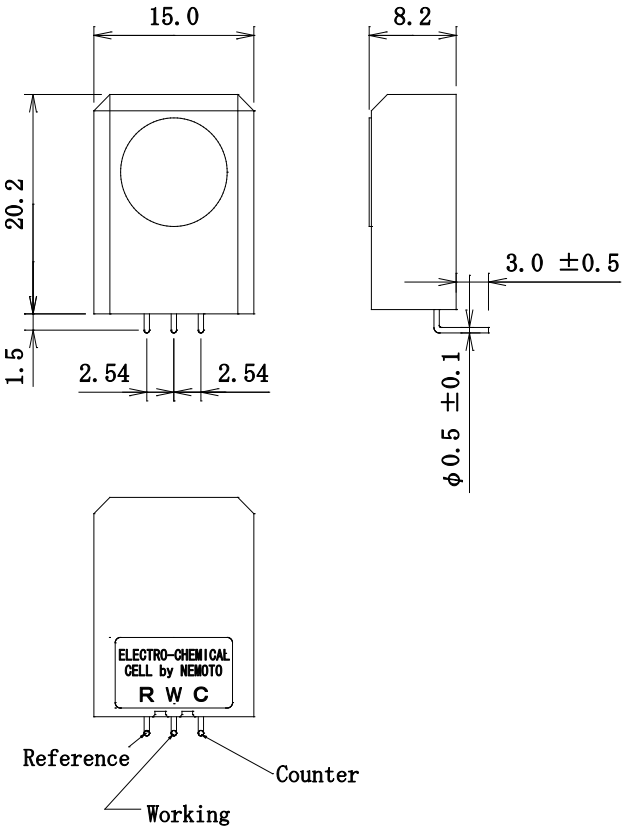
(Body color : Light blue)

NE-CO-P

NE-CO-P is an industrial CO gas sensor like NE-CO, since the shape is flat as the same as domestic NAP-505, and it can be directly soldered on the PCB. However the various resistivity and features are almost the same as NE-CO. It is also in compliance with world-wide standards, and available for a lot of applications.

・Characteristics and ratings

Items	Characteristics, ratings
Detected gas conc.	CO　0～1000ppm
Output current	40±10nA / ppm of CO
Repeatability	Less than ±2%
Response time	T90 : less than 30sec.
Zero offset drift	Less than 10ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH
Pressure range	0.9 – 1.1atm
Guaranteed life time	2 years
Storage conditions	0 – 20℃ is recommended
Zero offset drift	Less than 5ppm



・Typical application

Wearable, handheld or portable CO gas alarm

(±0.2)

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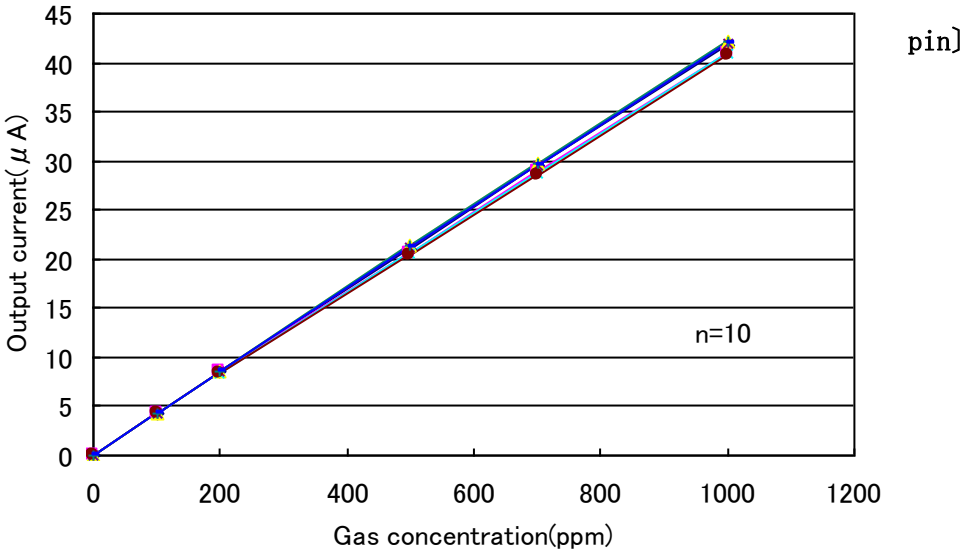


(Body color : Light blue)

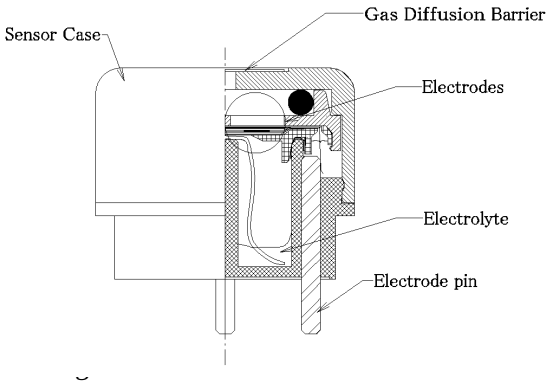
NE-H2S

NE-H2S is a hydrogen sulfide gas sensor for industrial applications, and 3 types except standard type (H2S-100, H2S-200 and H2S-500) are also available as described in the next page. The most suitable type can be easily selected according to the applications.

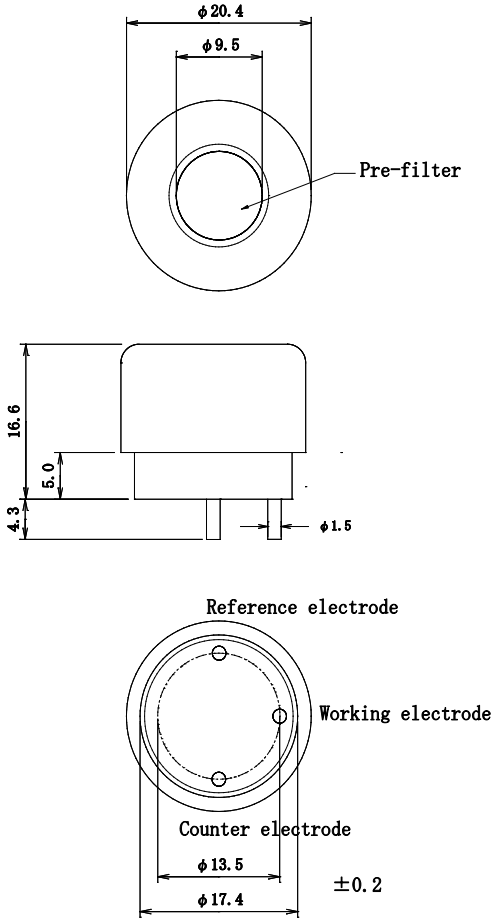
Output current is fairly large, it means that it can detect fairly low concentration of hydrogen sulfide, and additionally, since it has excellent selectivity, resistivity and responsibility, it is applicable in wide applications.

・Characteristics

Items	Features
Detected gas conc.	H_2S 0～100ppm
Output current	500±100nA/ppm of H2S
Repeatability	Less than ±2%
Response time	T90 : less than 30sec.
Zero offset drift	Less than 1ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH



tructure of NE-H2S



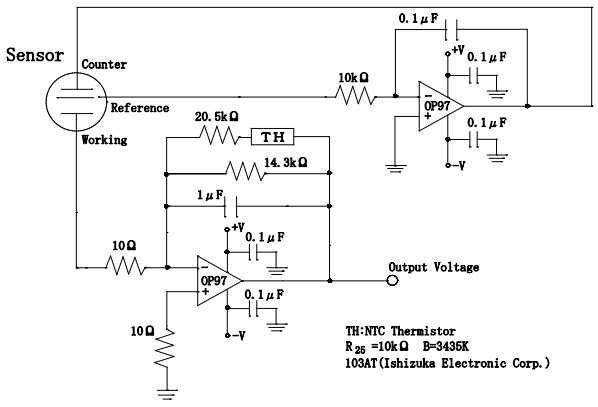


Fig. Structure of NE-H2S

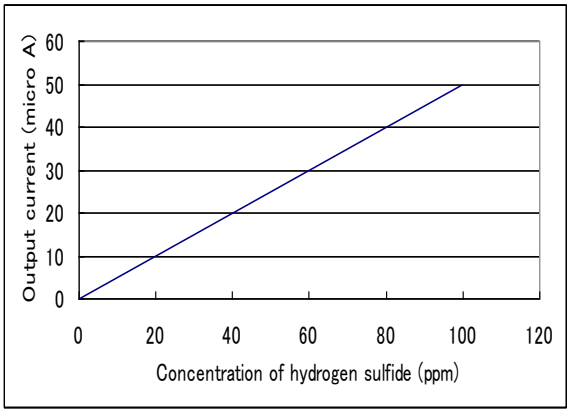


Fig. Gas sensitivity characteristics of NE-H2S

(Body color : Yellow)

NE-H2S-100, 200, 500

Structure, shape, and body color of them are completely the same as NE-H2S standard type, then sensitivity characteristics of them are shown as below.

・NE-H2S-100

Items	Features
Detected gas concentration	H_2S 0～100ppm
Output current	700±150nA/ppm
Repeatability	Less than ±2%
Response time	T90 : less than 30sec.
Zero offset drift	Less than 1ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH

・NE-H2S-200

Items	Features
Detected gas concentration	H_2S 0～200ppm
Output current	500±100nA/ppm
Repeatability	Less than ±2%
Response time	T90 : less than 30sec.
Zero offset drift	Less than 1ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH

・NE-H2S-500

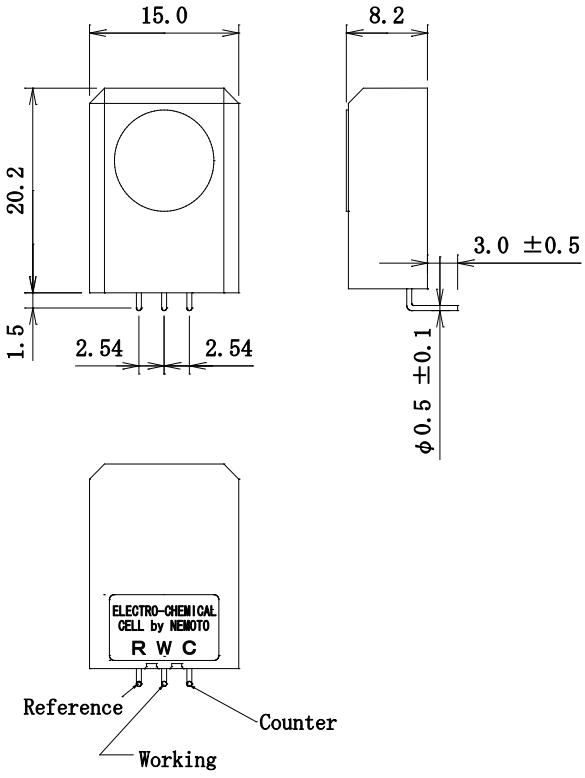
Items	Features
Detected gas concentration	H_2S 0～500ppm
Output current	200±50nA/ppm of H2S
Repeatability	Less than ±2%
Response time	T90 : less than 20sec.
Zero offset drift	Less than 3ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH

NE-H2S-P

NE-H2S-P is an industrial H2S gas sensor like NE-H2S, since the shape is flat as the same as domestic NAP-505, it can be directly soldered on PCB. However the various resistivity and features are almost the same as NE-H2S. It is also in compliance with world-wide standards, and available for a lot of applications.

・Characteristics and ratings

Items	Characteristics, ratings
Detected gas conc.	H2S　0～100ppm
Output current	120±20nA / ppm of H2S
Repeatability	Less than ±2%
Response time	T90 : less than 20sec.
Zero offset drift	Less than 2ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH
Pressure range	0.9 – 1.1atm
Guaranteed life time	2 years
Storage conditions	0 – 20℃ is recommended
Zero offset drift	Less than 1ppm



・Typical application

Wearable, Handheld or portable H2S gas alarm

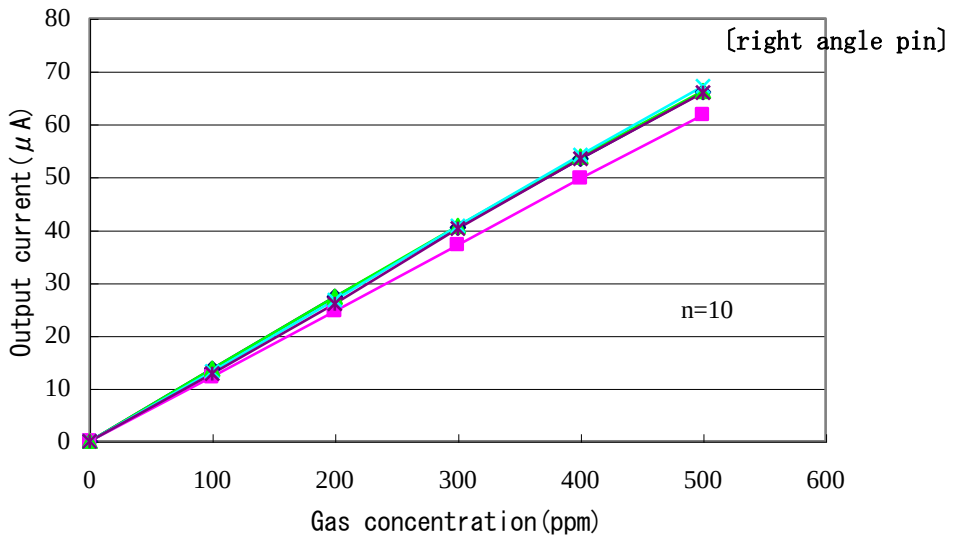


Fig. Gas concentration characteristics

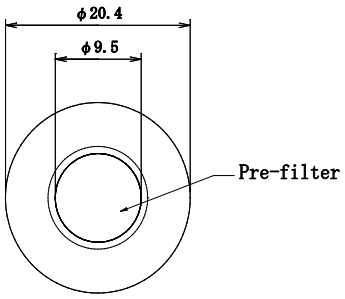
(Body color : Yellow)

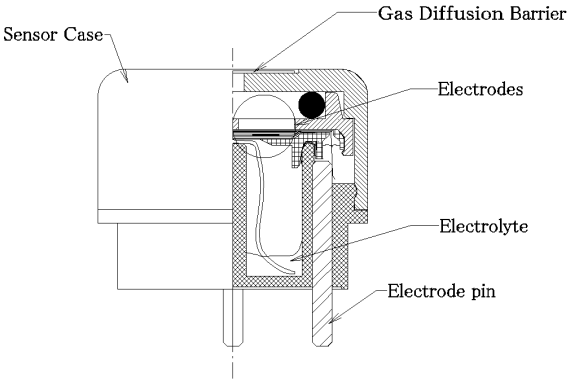
NE-NH3

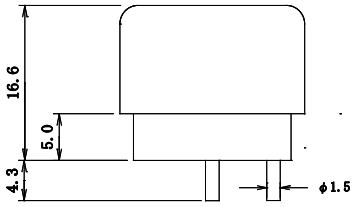
NE-NH3 is a newly developed ammonia gas sensor for industrial application. 2 more types except standard are also available for higher concentration in the next page. It is very stable in normal circumstance for more than 6 months, and can detect ammonia with excellent accuracy without reduction of sensitivity. Additionally, since it is applicable in exceedingly low temperature, it is available for many applications.

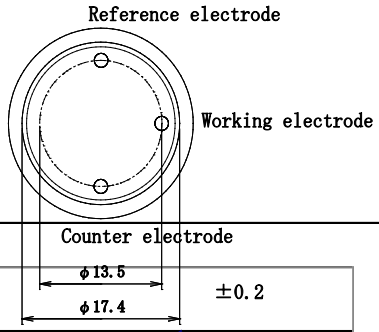
・Characteristics

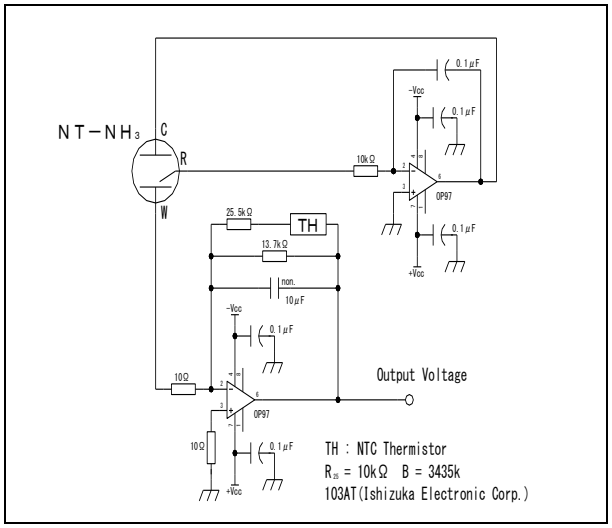
Items	Features
Detected gas conc.	NH_3 0～100ppm
Output current	40±12nA / ppm
Repeatability	Less than ±10%
Response speed	T90 : less than 90sec.
Zero offset drift	Less than 15ppm(-30－50℃)
Temperature	－40～＋50℃
Humidity	15～90％RH











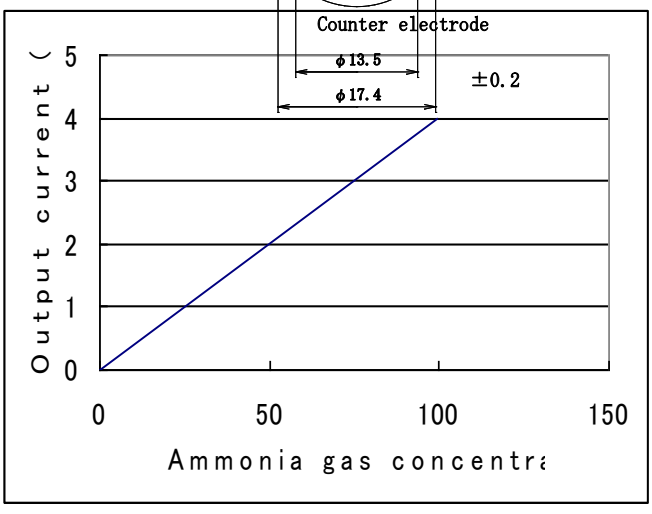


Fig. Recommended circuit diagram

Fig. Gas concentration characteristics

(Body color : Violet)

NE-NH3-1000, 5000

Structure, shape, and body color of them are completely the same as NE-NH3 standard type, then sensitivity characteristics of them are shown as below.

・NE-NH3-1000

Items	Features
Detected gas concentration	NH_3 0～1,000ppm
Output current	8±4nA / ppm
Repeatability	Less than ±10%
Response speed	T90 : less than 120sec.
Zero offset drift	Less than 75ppm(-30－50℃)
Temperature	－40～＋50℃
Humidity	15～90％RH

・NE-NH3-5000

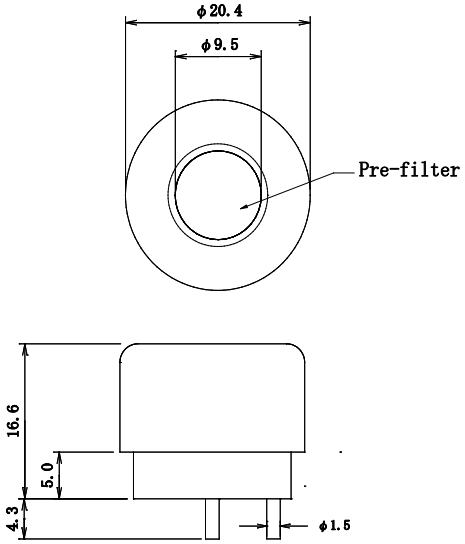
Items	Features
Detected gas concentration	NH_3 0～5,000ppm
Output current	4±2nA / ppm
Repeatability	Less than ±10%
Response speed	T90 : less than 150sec.
Zero offset drift	Less than 150ppm(-30－50℃)
Temperature	－40～＋50℃
Humidity	15～90％RH

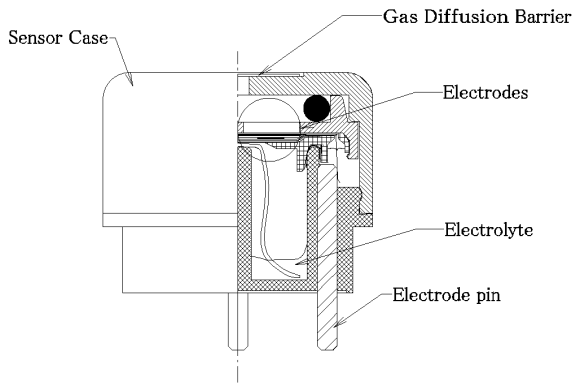
NE-NO2

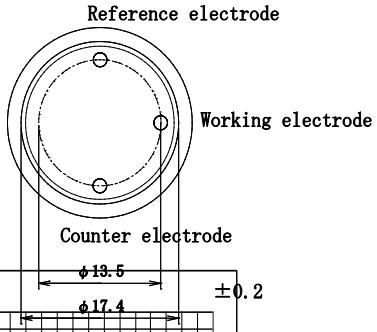
NE-NO2 is a newly developed NO2 gas sensor. Since the output current is fairly large, it can detect the low concentration of NO2 with good accuracy. Additionally, as it has very excellent repeatability, long term stability, selectivity and resistivity, it is useful in many applications.

・Characteristics

Items	Features
Detected gas conc.	NO_2 0～20ppm
Output current	600±150nA / ppm (Contrary signal to other models)
Repeatability	Less than ±2%
Response time	T90 : less than 25sec.
Zero offset drift	Less than 0.2ppm(-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH







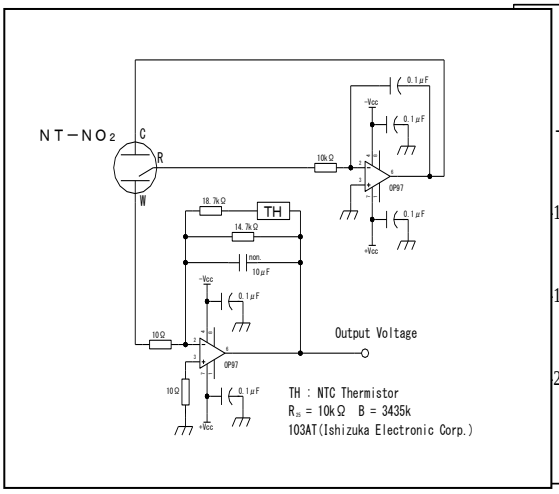


Fig. Recommended circuit diagram

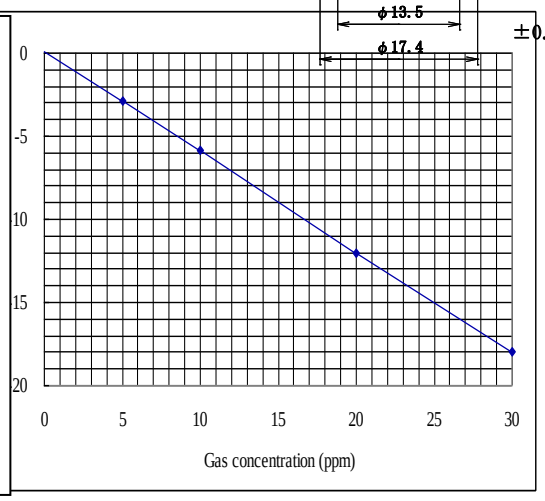


Fig. Gas concentration characteristics

(Body color : Pink)

NE-NO2-P

NE-NO2-P is an industrial NO2 gas sensor like NE-NO2, since the shape is flat as the same as domestic NAP-505, it can be directly soldered on PCB. However the various resistivity and features are almost the same as NE-NO2. It is also in compliance with world-wide standards, and available for a lot of applications.

・Characteristics and ratings

Items	Characteristics, ratings
Detected gas conc.	NO2　0～20ppm
Output current	150±30nA / ppm of NO2
Repeatability	Less than ±2%
Response time	T90 : less than 25sec.
Zero offset drift	Less than 0.5ppm (-20－50℃)
Temperature	－20～＋50℃
Humidity	15～90%RH
Pressure range	0.9 – 1.1atm
Guaranteed life time	2 years
Storage conditions	0 – 20℃ is recommended
Zero offset drift	Less than 0.5ppm

Notice)
Output signal is generated to contrary side to other models.

・Typical application
Wearable, handheld or portable NO2 gas alarm

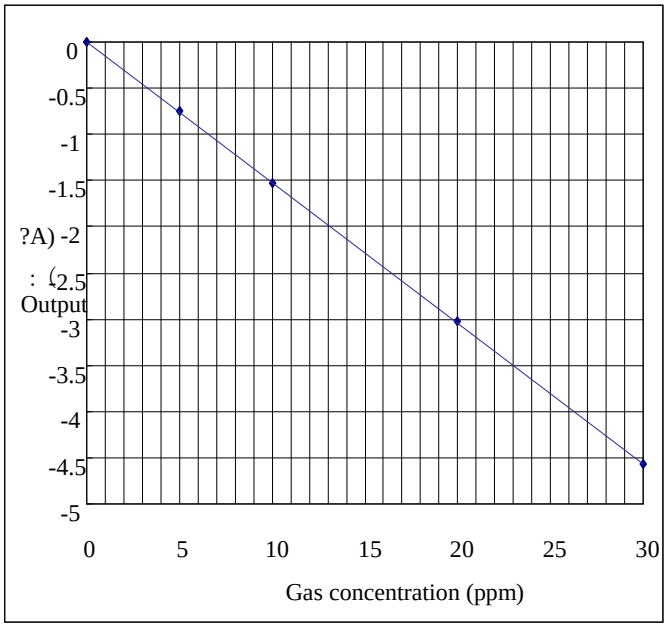


Fig. Gas concentration characteristics

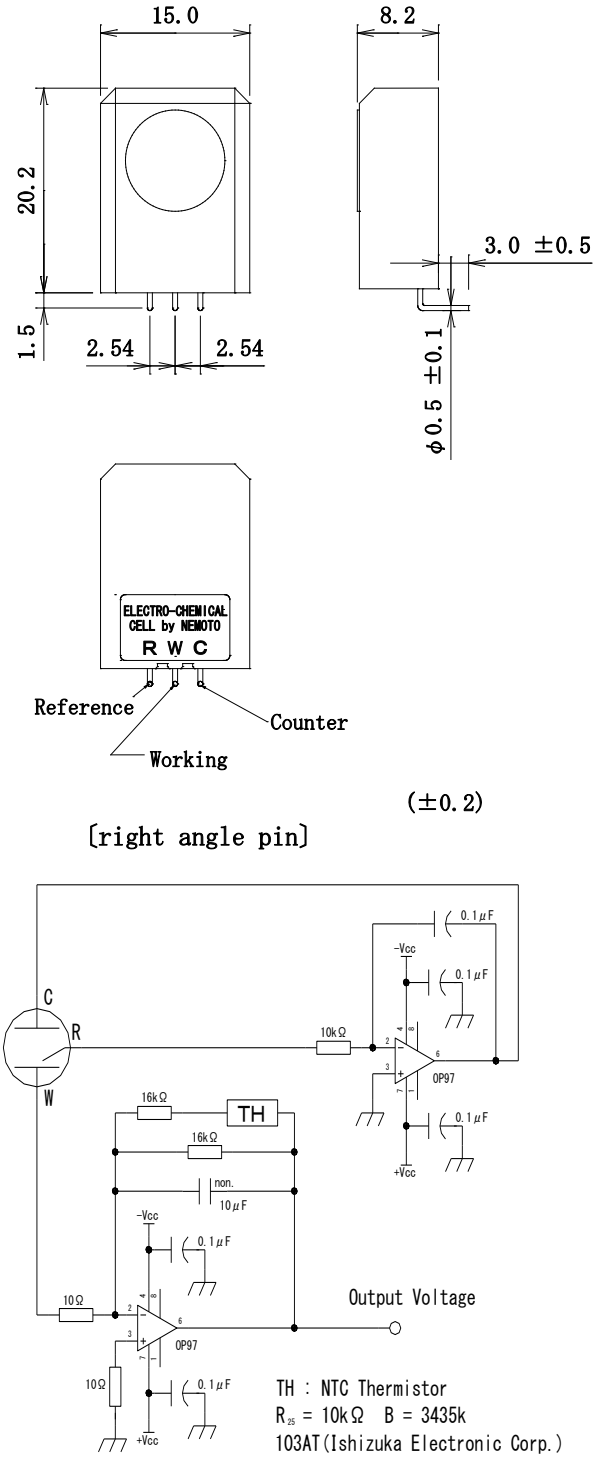


Fig. Recommended circuit diagram

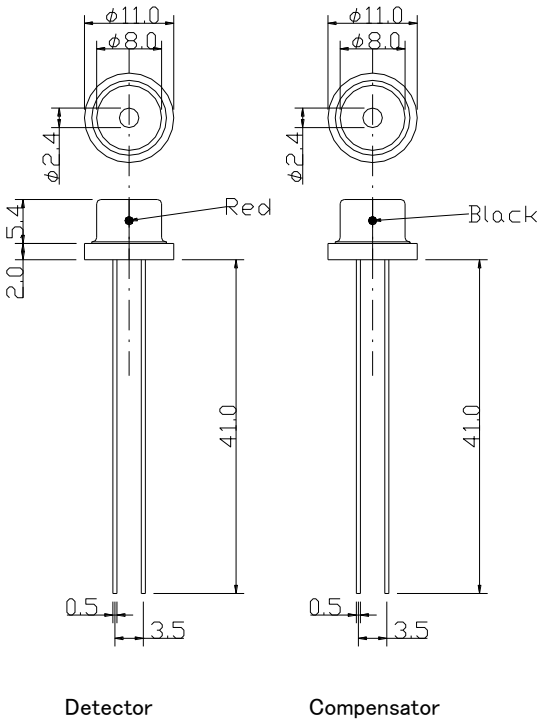
(Body color : Pink)

NC-170

NC-170 gas sensor is a matched pair type for industrial use, and it has been already available in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 2.0V
- Current 170 – 190mV
  (When 2.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



●Standard sensitivity and zero offset in air

13 – 18mV/10%LEL of methane, -25 to +25mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	90	12	CO	12.50	115
3	n-Butane	1.80	80	13	Acetone	2.60	75
4	n-Pentane	1.40	80	14	MEK	1.90	55
5	n-Hexane	1.20	80	15	Toluene	1.20	60
6	n-Heptane	1.05	65	16	Ethyl acetate	2.20	75
7	n-Octane	0.95	60	17	Hydrogen	4.00	130
8	Methanol	6.70	125	18	Ammonia	15.00	140
9	Ethanol	3.30	85	19	Gasoline Pb free	1.20	80
10	IPA	2.20	75	20	Ethylene	2.70	95

* : 「-」 means that it is not a detected gas.

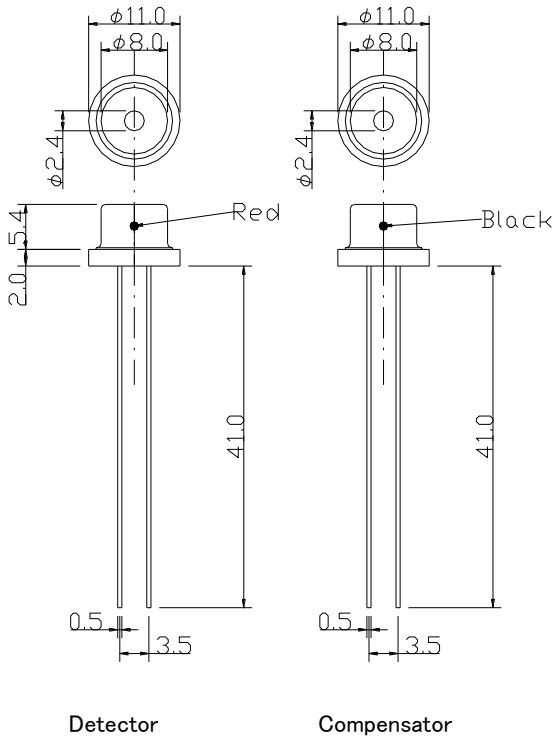
** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-300

NC-300 gas sensor is a matched pair type for industrial use like NC-170, and it has been already available in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, shape, dimensions

- Supply voltage 2.0V
- Current 280 – 300mV
  (When 2.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



Detector Compensator

●Standard sensitivity and zero offset in air

11 – 16mV/10%LEL of methane, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R.S.	Gases		LEL	R.S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	75	12	CO	12.50	110
3	n-Butane	1.80	70	13	Acetone	2.60	60
4	n-Pentane	1.40	70	14	MEK	1.90	45
5	n-Hexane	1.20	65	15	Toluene	1.20	60
6	n-Heptane	1.05	55	16	Ethyl acetate	2.20	60
7	n-Octane	0.95	50	17	Hydrogen	4.00	110
8	Methanol	6.70	100	18	Ammonia	15.00	130
9	Ethanol	3.30	70	19	Gasoline Pb free	1.20	65
10	IPA	2.20	60	20	Ethylene	2.70	85

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-170S

NC-170S gas sensor is a single header type for industrial use, and it has been already available in many customers for fixed applications. This type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, shape, dimensions

- Supply voltage 2.0V
- Current 170 – 190mV
  (When 2.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions Diameter of base φ 16.5
  Diameter of strainer φ 13
  Height φ 15
  Pin length φ 6

●Standard sensitivity and zero offset in air

27– 37mV/10%LEL of methane, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R.S.	Gases		LEL	R.S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	90	12	CO	12.50	115
3	n-Butane	1.80	80	13	Acetone	2.60	75
4	n-Pentane	1.40	80	14	MEK	1.90	55
5	n-Hexane	1.20	80	15	Toluene	1.20	60
6	n-Heptane	1.05	65	16	Ethyl acetate	2.20	75
7	n-Octane	0.95	60	17	Hydrogen	4.00	130
8	Methanol	6.70	125	18	Ammonia	15.00	140
9	Ethanol	3.30	85	19	Gasoline Pb free	1.20	80
10	IPA	2.20	75	20	Ethylene	2.70	95

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-300S

NC-300S gas sensor is a single header type for industrial use like NC-170S, and it has been already available in many customers for fixed applications. This type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, shape, dimensions

- Supply voltage 2.0V
- Current 280 – 300mV
  (When 2.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions Diameter of base φ 16.5
  Diameter of strainer φ 13
  Height φ 15
  Pin length φ 6

●Standard sensitivity and zero offset in air

23– 33mV/10%LEL of methane, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R.S.	Gases		LEL	R.S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	75	12	CO	12.50	110
3	n-Butane	1.80	70	13	Acetone	2.60	60
4	n-Pentane	1.40	70	14	MEK	1.90	45
5	n-Hexane	1.20	65	15	Toluene	1.20	60
6	n-Heptane	1.05	55	16	Ethyl acetate	2.20	60
7	n-Octane	0.95	50	17	Hydrogen	4.00	110
8	Methanol	6.70	100	18	Ammonia	15.00	130
9	Ethanol	3.30	70	19	Gasoline Pb free	1.20	65
10	IPA	2.20	60	20	Ethylene	2.70	85

* : 「-」 means that it is not a detected gas.

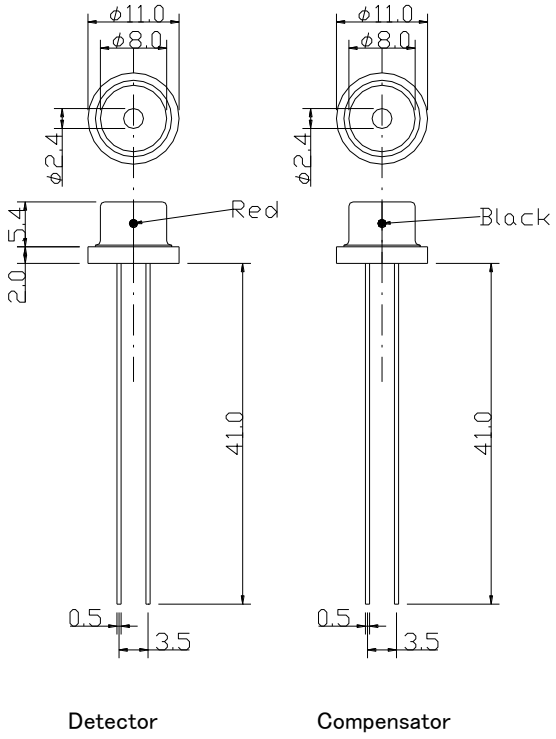
** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-180

NC-180 gas sensor is a matched pair type for industrial use, and it has been already available also in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 2.6V
- Current 170 – 190mV
  (When 2.6V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



Detector Compensator

●Standard sensitivity

14 – 19mV/10%LEL of methane

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	75	12	CO	12.50	110
3	n-Butane	1.80	70	13	Acetone	2.60	60
4	n-Pentane	1.40	70	14	MEK	1.90	50
5	n-Hexane	1.20	70	15	Toluene	1.20	60
6	n-Heptane	1.05	60	16	Ethyl acetate	2.20	60
7	n-Octane	0.95	55	17	Hydrogen	4.00	110
8	Methanol	6.70	100	18	Ammonia	15.00	135
9	Ethanol	3.30	70	19	Gasoline Pb free	1.20	60
10	IPA	2.20	60	20	Ethylene	2.70	90

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-180S

NC-180S gas sensor is a single header type for industrial use like NC-170S, and it has been already available in many customers for fixed applications. This type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc. .

●Ratings, shape, dimensions

- Supply voltage 2.6V
- Current 170 – 190mV
  (When 2.6V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions Diameter of base φ 16.5
  Diameter of strainer φ 13
  Height φ 15
  Pin length φ 6

●Standard sensitivity and zero offset in air

28– 40mV/10%LEL of methane, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	75	12	CO	12.50	110
3	n-Butane	1.80	70	13	Acetone	2.60	60
4	n-Pentane	1.40	70	14	MEK	1.90	50
5	n-Hexane	1.20	70	15	Toluene	1.20	60
6	n-Heptane	1.05	60	16	Ethyl acetate	2.20	60
7	n-Octane	0.95	55	17	Hydrogen	4.00	110
8	Methanol	6.70	100	18	Ammonia	15.00	135
9	Ethanol	3.30	70	19	Gasoline Pb free	1.20	60
10	IPA	2.20	65	20	Ethylene	2.70	90

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-180S-H

NC-180S-H gas sensor is a single header type hydrogen gas sensor for industrial application, and it has been already available in many customers for fixed applications. This type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, shape, dimensions

- Supply voltage 1.6V
- Current 130 – 150mV
  (When 1.6V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions Diameter of base φ 16.5
  Diameter of strainer φ 13
  Height φ 15
  Pin length φ 6

●Standard sensitivity and zero offset in air

35– 50mV/10%LEL of hydrogen, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	Methane	5.00%	0	11	Acetylene	2.50	-
2	Propane	2.20	0	12	CO	12.50	115
3	n-Butane	1.80	0	13	Acetone	2.60	45
4	n-Pentane	1.40	5	14	MEK	1.90	45
5	n-Hexane	1.20	10	15	Toluene	1.20	70
6	n-Heptane	1.05	30	16	Ethyl acetate	2.20	10
7	n-Octane	0.95	20	17	**Hydrogen**	**4.00**	**100**
8	Methanol	6.70	100	18	Ammonia	15.00	120
9	Ethanol	3.30	40	19	Gasoline Pb free	1.20	10
10	IPA	2.20	45	20	Ethylene	2.70	65

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **hydrogen** is 100.

NC-180S-N

NC-180S-N gas sensor is a single header type ammonia gas sensor for industrial application, and it has been already available in many customers for fixed applications. This type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, shape, dimensions

- Supply voltage 2.2V
- Current 160 – 180mV
  (When 2.2V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions Diameter of base φ 16.5
  Diameter of strainer φ 13
  Height φ 15
  Pin length φ 6

●Standard sensitivity and zero offset in air

35– 65mV/10%LEL of ammonia, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	Methane	5.00%	0	11	Acetylene	2.50	-
2	Propane	2.20	20	12	CO	12.50	20
3	n-Butane	1.80	30	13	Acetone	2.60	60
4	n-Pentane	1.40	40	14	MEK	1.90	50
5	n-Hexane	1.20	45	15	Toluene	1.20	50
6	n-Heptane	1.05	40	16	Ethyl acetate	2.20	50
7	n-Octane	0.95	35	17	Hydrogen	4.00	75
8	Methanol	6.70	80	18	**Ammonia**	**15.00**	**100**
9	Ethanol	3.30	55	19	Gasoline Pb free	1.20	35
10	IPA	2.20	50	20	Ethylene	2.70	60

* : 「-」 means that it is not a detected gas.

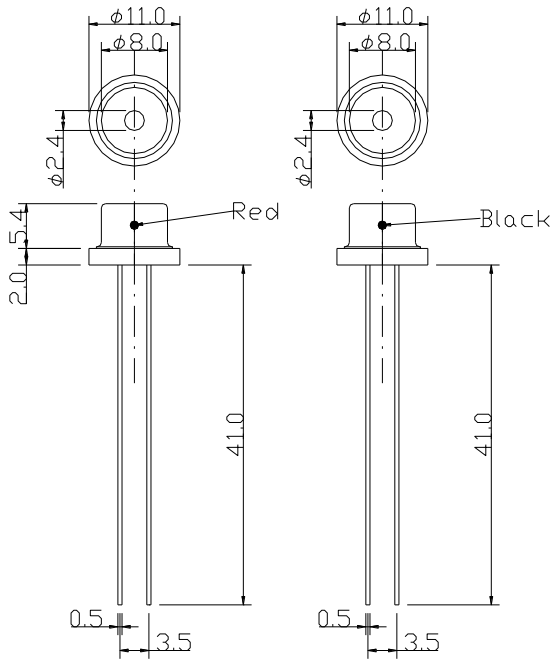
** : R.S. (relative sensitivity) is described in case that sensitivity to **ammonia** is 100.

NC-180-H

NC-180-H gas sensor is a matched pair type hydrogen gas sensor for industrial application, and it has been already available also in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 1.6V
- Current 130 – 150mV
  (When 1.6V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



Detector Compensator

●Standard sensitivity and zero offset in air

10 – 20mV/10%LEL of hydrogen, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	Methane	5.00%	0	11	Acetylene	2.50	-
2	Propane	2.20	0	12	CO	12.50	110
3	n-Butane	1.80	0	13	Acetone	2.60	40
4	n-Pentane	1.40	5	14	MEK	1.90	40
5	n-Hexane	1.20	10	15	Toluene	1.20	55
6	n-Heptane	1.05	25	16	Ethyl acetate	2.20	10
7	n-Octane	0.95	15	17	**Hydrogen**	**4.00**	**100**
8	Methanol	6.70	95	18	Ammonia	15.00	115
9	Ethanol	3.30	35	19	Gasoline Pb free	1.20	15
10	IPA	2.20	40	20	Ethylene	2.70	65

* : 「-」 means that it is not a detected gas.

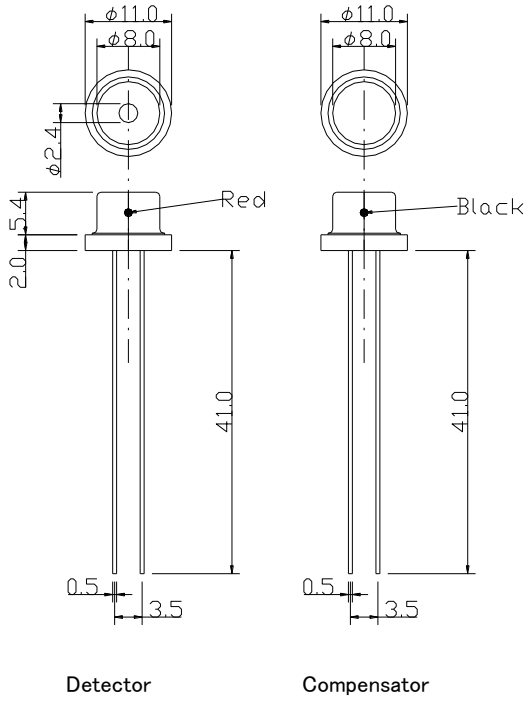
** : R.S. (relative sensitivity) is described in case that sensitivity to **hydrogen** is 100.

NC-180-A

NC-180-A gas sensor is a matched pair type acetylene gas sensor for industrial use, and it has been already available also in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 2.0V
- Current 140 – 170mV
  (When 2.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



●Standard sensitivity and zero offset

8 – 20mV/10%LEL of acetylene, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	Methane	5.00%	0	**11**	**Acetylene**	**2.50**	**100**
2	Propane	2.20	25	12	CO	12.50	110
3	n-Butane	1.80	35	13	Acetone	2.60	85
4	n-Pentane	1.40	55	14	MEK	1.90	75
5	n-Hexane	1.20	65	15	Toluene	1.20	70
6	n-Heptane	1.05	60	16	Ethyl acetate	2.20	70
7	n-Octane	0.95	55	17	Hydrogen	4.00	130
8	Methanol	6.70	130	18	Ammonia	15.00	165
9	Ethanol	3.30	90	19	Gasoline Pb free	1.20	65
10	IPA	2.20	80	20	Ethylene	2.70	95

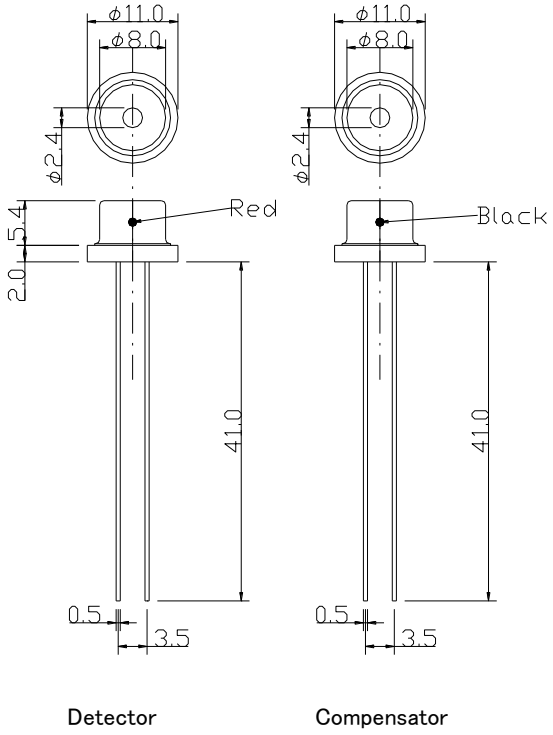
* : R.S. (relative sensitivity) is described in case that sensitivity to **acetylene** is 100.

NC-180-N

NC-180-N gas sensor is a matched pair type ammonia gas sensor for industrial use, and it has been already available also in many customers for fixed applications. Since this type does not meet the structure of explosion proof by itself, it has to be installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 2.2V
- Current 160 – 190mV
  (When 2.2V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure
  Pin length is shortened to 25mm now, and O-ring is attached on both.



Detector Compensator

●Standard sensitivity and zero offset in air

15 – 25mV/10%LEL of ammonia, -30 to +30mV in zero offset in air

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	Methane	5.00%	10	11	Acetylene	2.50	-
2	Propane	2.20	20	12	CO	12.50	85
3	n-Butane	1.80	40	13	Acetone	2.60	60
4	n-Pentane	1.40	55	14	MEK	1.90	45
5	n-Hexane	1.20	60	15	Toluene	1.20	40
6	n-Heptane	1.05	50	16	Ethyl acetate	2.20	60
7	n-Octane	0.95	45	17	Hydrogen	4.00	110
8	Methanol	6.70	100	**18**	**Ammonia**	**15.00**	**100**
9	Ethanol	3.30	70	19	Gasoline Pb free	1.20	50
10	IPA	2.20	60	20	Ethylene	2.70	70

* : 「-」 means that it is not a detected gas.

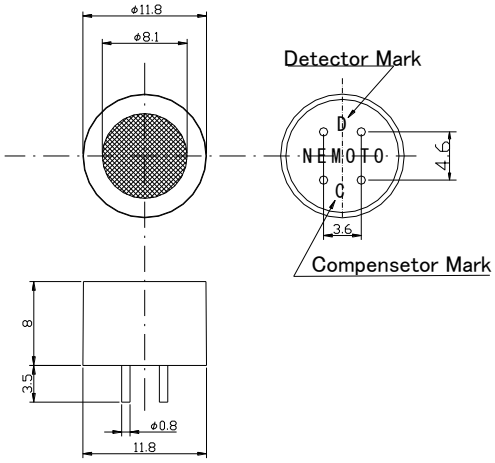
** : R.S. (relative sensitivity) is described in case that sensitivity to **ammonia** is 100.

NC-50S

NC-50S gas sensor is a single header type for industrial application, and it has been already available also in many customers for handheld, wearable or portable applications. Since this type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 4.25V
- Current 45 – 55mV
  (When 4.25V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure



●Standard sensitivity and zero offset in air
60 – 110mV/10%LEL of methane
-20 to +20mV in zero offset in air (Zero offset compensated resister is required.)

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	90	12	CO	12.50	160
3	n-Butane	1.80	90	13	Acetone	2.60	110
4	n-Pentane	1.40	85	14	MEK	1.90	90
5	n-Hexane	1.20	80	15	Toluene	1.20	90
6	n-Heptane	1.05	75	16	Ethyl acetate	2.20	90
7	n-Octane	0.95	70	17	Hydrogen	4.00	150
8	Methanol	6.70	160	18	Ammonia	15.00	130
9	Ethanol	3.30	120	19	Gasoline Pb free	1.20	70
10	IPA	2.20	110	20	Ethylene	2.70	130

* : 「-」 means that it is not a detected gas.

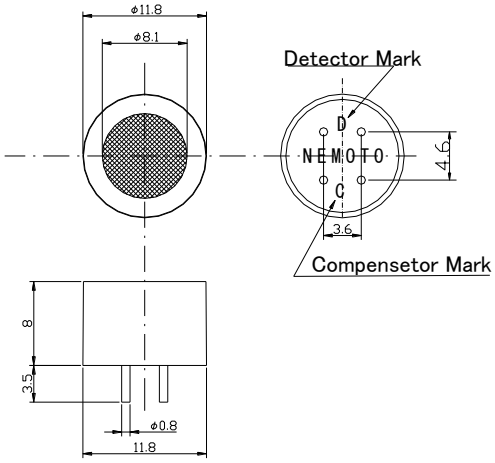
** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.

NC-70S

NC-70S gas sensor is a single header type for industrial application, and it has been already available also in many customers for handheld, wearable or portable applications. Since this type has a simplified explosion proof structure, however it is recommended that it is installed in the approved body by ATEX, CSA or etc.

●Ratings, dimensions, shape

- Supply voltage 3.0V
- Current 70 – 80mV
  (When 3.0V is supplied.)
- Temperature -20 - +60℃
- Humidity Less than 95%RH
  (Without dew condensation)
- Measurement range
  Less than 100%LEL
- Shape As per the right figure
- Dimensions As per the right figure



●Standard sensitivity and zero offset in air
50 – 80mV/10%LEL of methane
-20 to +20mV in zero offset in air (Zero offset compensated resister is required.)

●Relative sensitivity

Gases		LEL	R. S.	Gases		LEL	R. S.
1	**Methane**	**5.00%**	**100**	11	Acetylene	2.50	-
2	Propane	2.20	80	12	CO	12.50	160
3	n-Butane	1.80	75	13	Acetone	2.60	95
4	n-Pentane	1.40	70	14	MEK	1.90	70
5	n-Hexane	1.20	70	15	Toluene	1.20	80
6	n-Heptane	1.05	65	16	Ethyl acetate	2.20	80
7	n-Octane	0.95	60	17	Hydrogen	4.00	140
8	Methanol	6.70	150	18	Ammonia	15.00	150
9	Ethanol	3.30	100	19	Gasoline Pb free	1.20	75
10	IPA	2.20	90	20	Ethylene	2.70	110

* : 「-」 means that it is not a detected gas.

** : R.S. (relative sensitivity) is described in case that sensitivity to **methane** is 100.