

## Premium Line

# NT-SO2-PL100

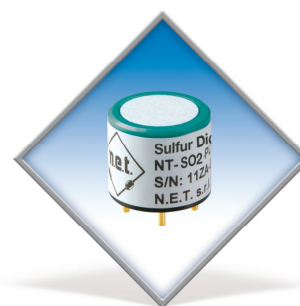
## Electrochemical Sulphur Dioxide Sensor

### Description

The NT-SO2-PL20 is a new electrochemical gas sensor with 3 electrodes for the detection of Sulphur Dioxide in a variety of gas detection applications. Exhibiting high performance with very stable base line and output signal and excellent selectivity, this compact sensor (20.4 mm diameter) is suitable both for portable and fixed gas detection instruments.

The porous electrode technology enables accurate gas detection with high sensitivity. The mechanical design of the sensor gives optimum gas diffusion characteristics, and the hermetically sealed enclosure prevents costly electrolyte leakage.

This new Premium Line design offers several advantages with respect to the traditional industrial sensor. For example it gives the possibility to use a general OP amplifier instead of the high-cost OP97.



### Technical Specifications

Detectable Gas:	Sulphur Dioxide
Detection Range:	0 – 100 ppm
Maximum overload:	500 ppm
Output Signal:	200 ± 50 nA/ppm
Resolution:	0.2 ppm
Repeatability:	± 2 %
Typical Baseline Range:	-0.2 ppm to +0.5 ppm (pure air)
Typical Response Time (t <sub>90</sub> ):	< 30 sec
Baseline Shift:	< 0.5 ppm (- 20 ~ 40 degree C)
Long Term Output Drift:	< 2%/month
Expected Life Time:	> 2 years
Weight:	Approximately 4.5 g

### Operating conditions

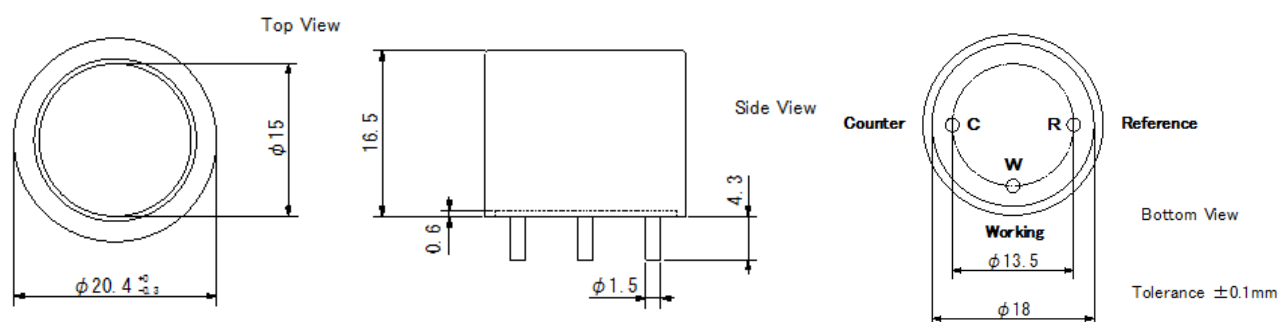
Operating Temperature:	-30°C to + 50°C
Operating Humidity:	15 to 90 % RH
Operating Pressure Range:	1 atm ± 10 %
Recommended Load Resistor:	10 Ω
Bias Voltage:	Not required
Position Sensitivity:	None
Recommended Storage Temp.:	0-20 °C
Storage Life:	6 months

Performance data conditions: 20 °C, 50%RH and 1013mBar.

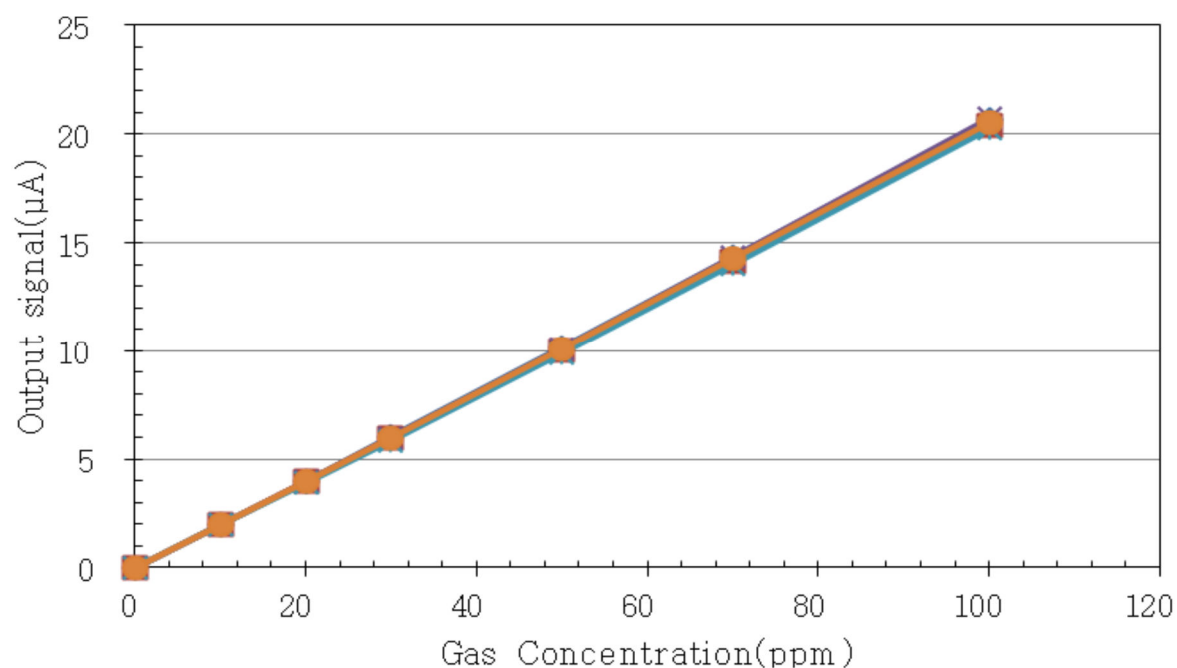
## Typical cross sensitivities

Gas	Test Gas Concentration (ppm)	Typical SO2 Concentration Equivalent (ppm)
Sulphur Dioxide	10	10
Carbon Monoxide	300	<1.5
Carbon Dioxide	5000	0
Hydrogen	400	<1
Hydrogen Sulfide	15	0
Nitric Oxide	50	0
Nitrogen Dioxide	10	-10
Ammonia	20	0
Chlorine	5	-2

## Dimensions

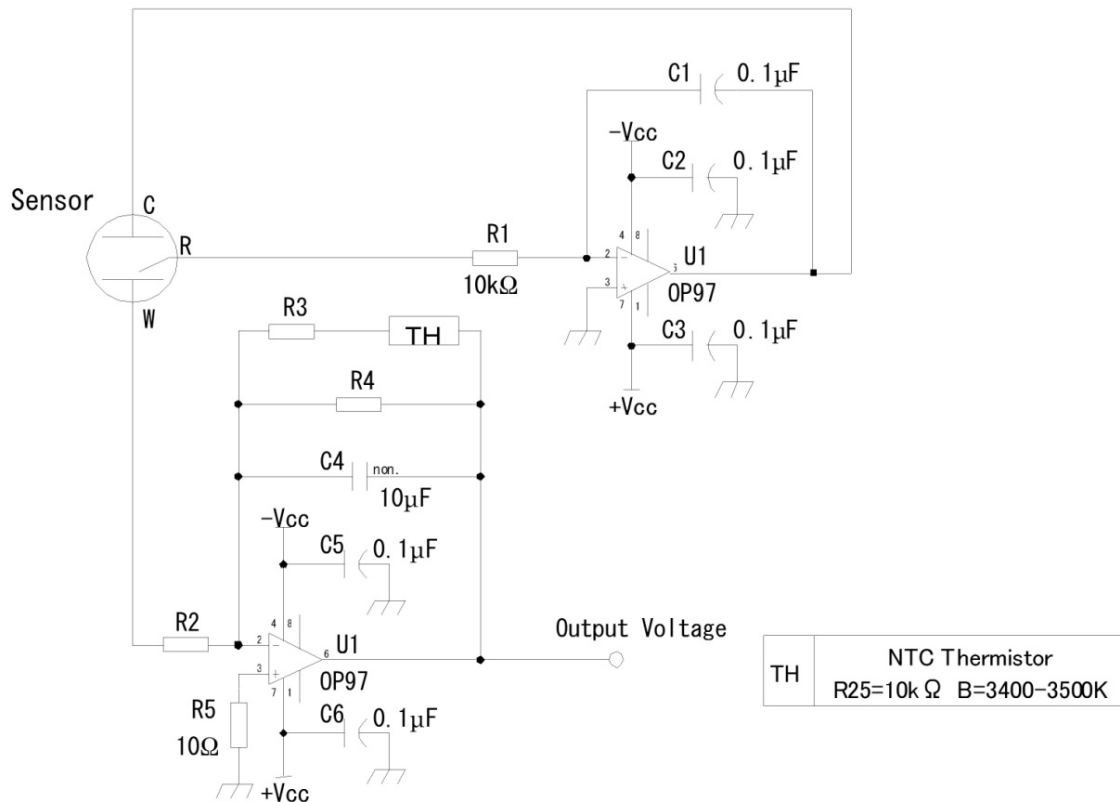


## Linearity



N.E.T. has a policy of continuous development and improvement of its products. As such the specification for the device outlined in the data sheet may be changed without notice.

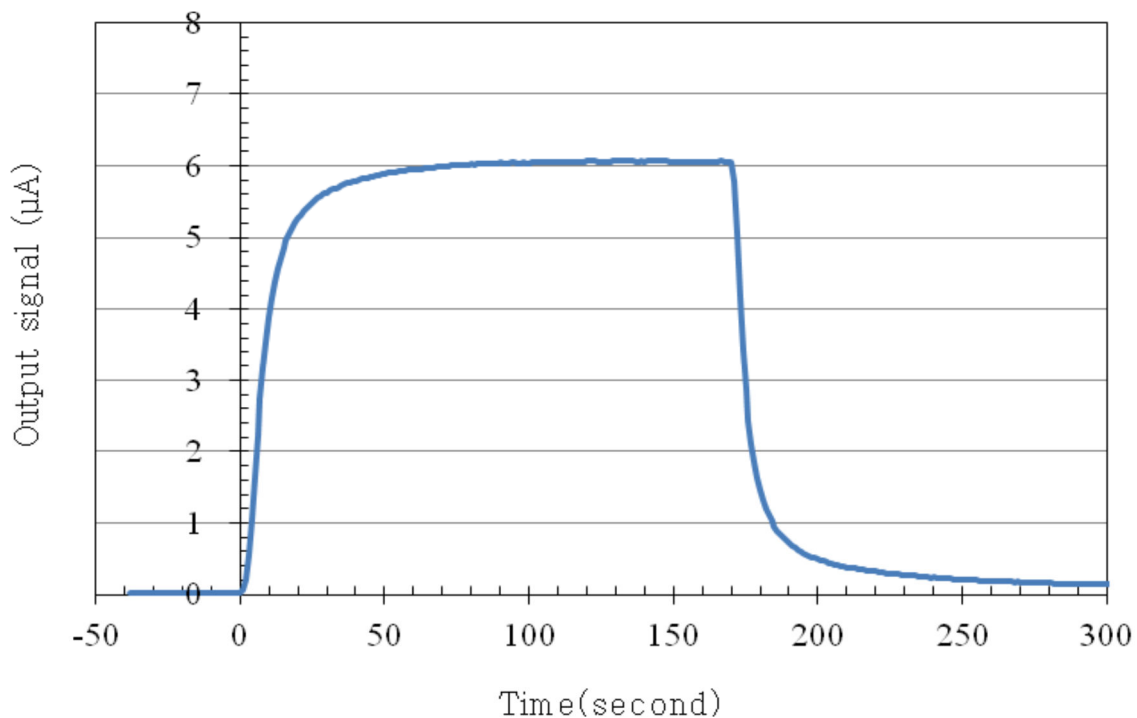
## Basic circuit including temperature compensation



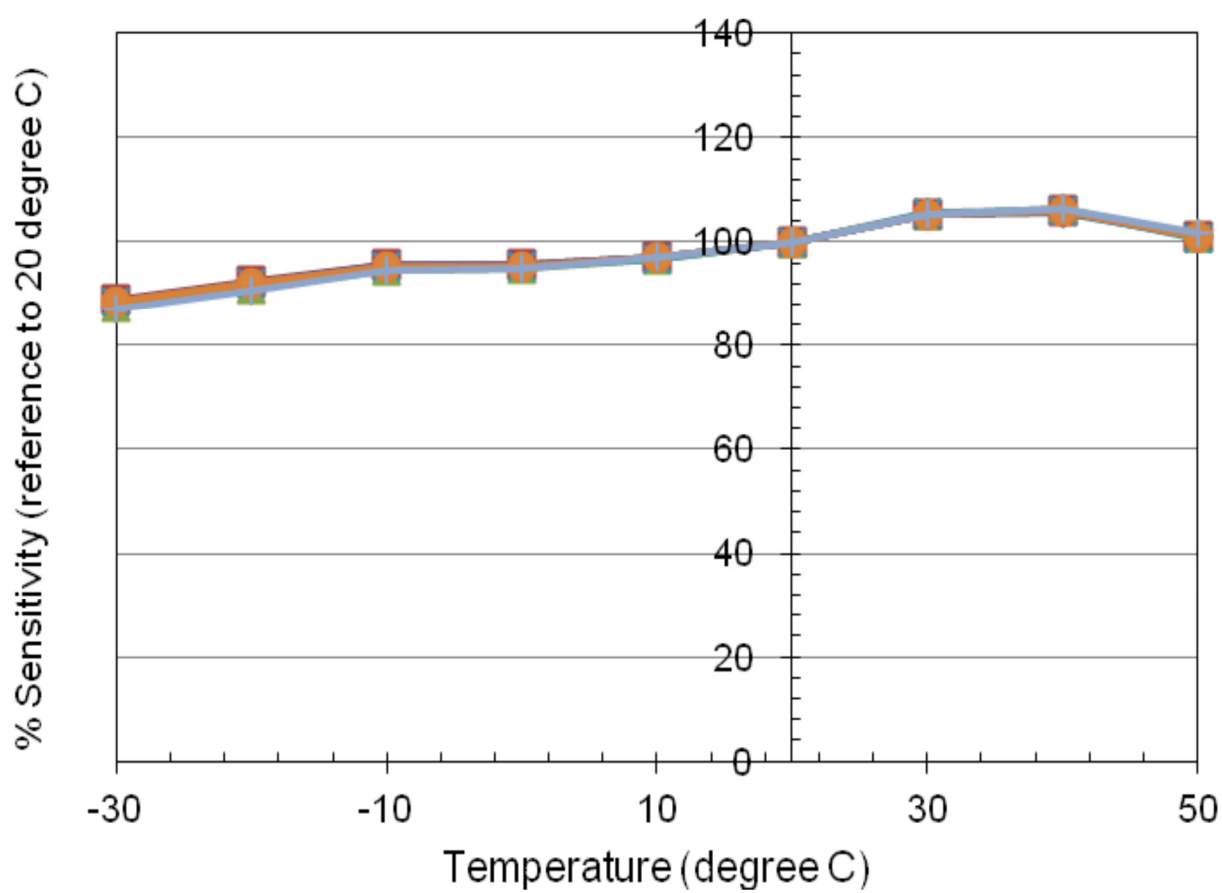
A basic operational circuit for NT-SO2-PL100.

In the circuit,  $R_2=10\ \Omega$ ,  $R_3=33\ \text{k}\Omega$  and  $R_4=12.7\ \text{k}\Omega$ . The temperature dependence of the sensor is compensated by NTC thermistor that has 3435K of B constant which is made by Ishizuka Denshi. Other thermistor can be used, if the B constant is around 3500K and the resistant value ( $R_{25}$ ) is 10 kΩ.

## Response time and recovery



## Temperature Dependency



## Baseline shift

