

# 酒精传感器

USER'S MANUAL  
HOT-WIRE TYPE GAS SENSOR SC0090  
(For Alcohol, Low Power Consumption)

## 1. General

Nemoto's SC0090 is a miniature-sized hot-wire type gas sensor for alcohol. This new sensor is designed for easy handling as well as lower power consumption. This sensor requires a shorter initial aging time that is a big advantage in designing battery-operated hand-held alcohol checkers (Breath analyzers). Compared to conventional semiconductor type sensors, this new sensor is more accurate and shows excellent reproducibility, therefore reliable alcohol checkers can be designed.

The following are features of SC0090

### Features

- \* Short initial stabilization time.
- \* Excellent linear output in proportioned to alcohol gas concentrations.
- \* Less affected by odors in breath.
- \* Lower humidity dependency.
- \* Excellent reproducibility.
- \* Superior response characteristics.

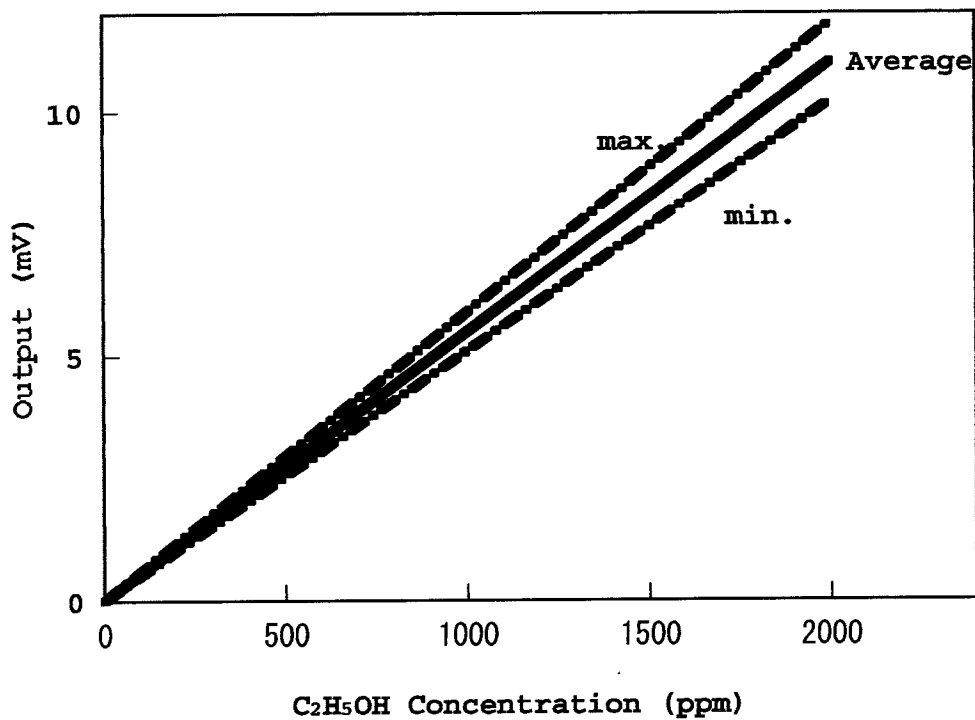
## 2. Specifications

- 1) Supply voltage            D.C. ; 1.80  $\pm$  0.1 V
- 2) Current ;                D.C. 140  $\sim$  160 mA (when 1.80 V is supplied)
- 3) Ambient temperature & humidity during operation ;

Temperature ; -10°C  $\sim$  +50°C

Humidity ; Less than 99% RH (without dew condensation)

### 3. Gas sensitivity



4. Recommended circuit ; As per attached drawing

5. How to use ;

- \* A sensor is mounted on to a PCB. It is recommended not to use a soldering bath. When manually soldered, please pay attention not to contaminate the mesh part of the sensor with soldering flux.
- \* An assembled PCB is put in a housing and then the rated voltage is supplied. 10 minutes later, V/R is adjusted for proper calibration.
- \*\*\* Please refer to the attached sheet for functions and features of an alcohol checker using our recommended circuit.

### Alcohol concentrations in blood and breath

Generally speaking, alcohol concentrations in breath are proportioned to the ones in blood. Therefore this sensor will be able to judge being drunk or not. According to Japanese regulations, a borderline of being or not being drunk is 120mg/litter of alcohol concentration in blood. This is thought to be equivalent to 200ppm of alcohol content in breath. Please check the regulations of countries where your alcohol checker is used.

Semiconductor type alcohol sensors can judge only whether alcohol is contained in breath or not, but hot-wire type sensors will be able to quantitatively judge the alcohol content.

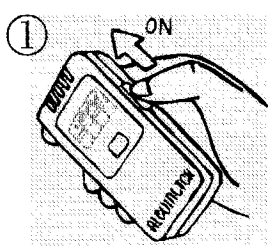
However, SC0090 is supplied for residential use and our recommended circuit is not designed for accurate concentration measurement. Therefore it is strongly recommended, when you prepare your catalog or users manual, to pay special attention not to mislead users of your alcohol checkers as if accurate concentration measurement is possible.

### An example of alcohol checker using our recommended circuit

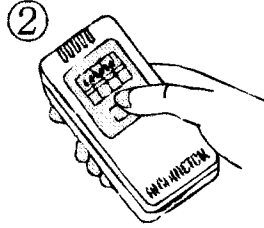
Features ;

- \* Instant checking is possible because of the highly accurate sensor.
- \* LED display for easy readings.
- \* Easy checking of a sobering-down time.
- \* Compactly designed for portableness.
- \* Battery-operated.

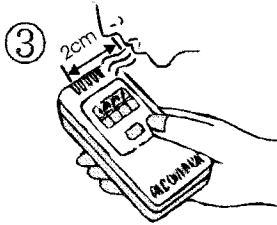
## How to use



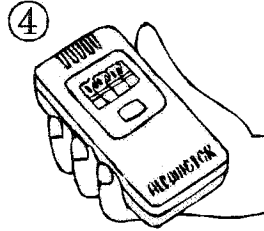
Switch on. All LEDs are lit, then only Green lamp (Power) remains lit after a short time. It is recommended to wait for 1 - 2 minutes for accurate measurement.



Press the TEST button at the center to get ready for measurement. No need to continue to press.



Blow your breath on to the slits marked BLOW from a 2 - 3 cm distance.



Alcohol content in breath is displayed by LED lamps.

Displays (Quantity of whisky taken vs. LED displays)  
Quantity of whisky (single shot, 30 ml) - alcohol content = 43%

		One hour after drinking			Three hours after drinking		
One shot	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■
Two shots	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■
Three shots	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■
Four shots	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■
Five shots	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■
Six shots	Ex.1	■	■	■	■	■	■
	Ex.2	■	■	■	■	■	■

Green Orange Red  
Lit  
No-lit

Displays (LED lamps)

Display	LED lit	Alcohol in 1 liter of breath
0	Green	Power No alcohol
5		50 - 90 ppm
10	Orange	100 - 149 ppm
15		150 - 199 ppm
20	Red	200 - 249 ppm
25		More than 250 ppm

## Specifications

Operational temperature

Operational humidity

Batteries

Battery life ; 180 hrs. continuously

Power consumption ; Less than 1.5 W

Weight ; 100g (Excl. batteries)

Dimensions ; 130 x 63 x 27 mm

## Remarks ;

Please do not use this checker for the purpose of avoiding drunk driving.

Measurement results with this checker may differ from the ones with official equipment that is used by police.

Please refrain from driving when you feel you are not enough sobered down.

Manufacturer, vendor, and all any other party related with the supply of this product assume no responsibility for any criminal or civil punishment.

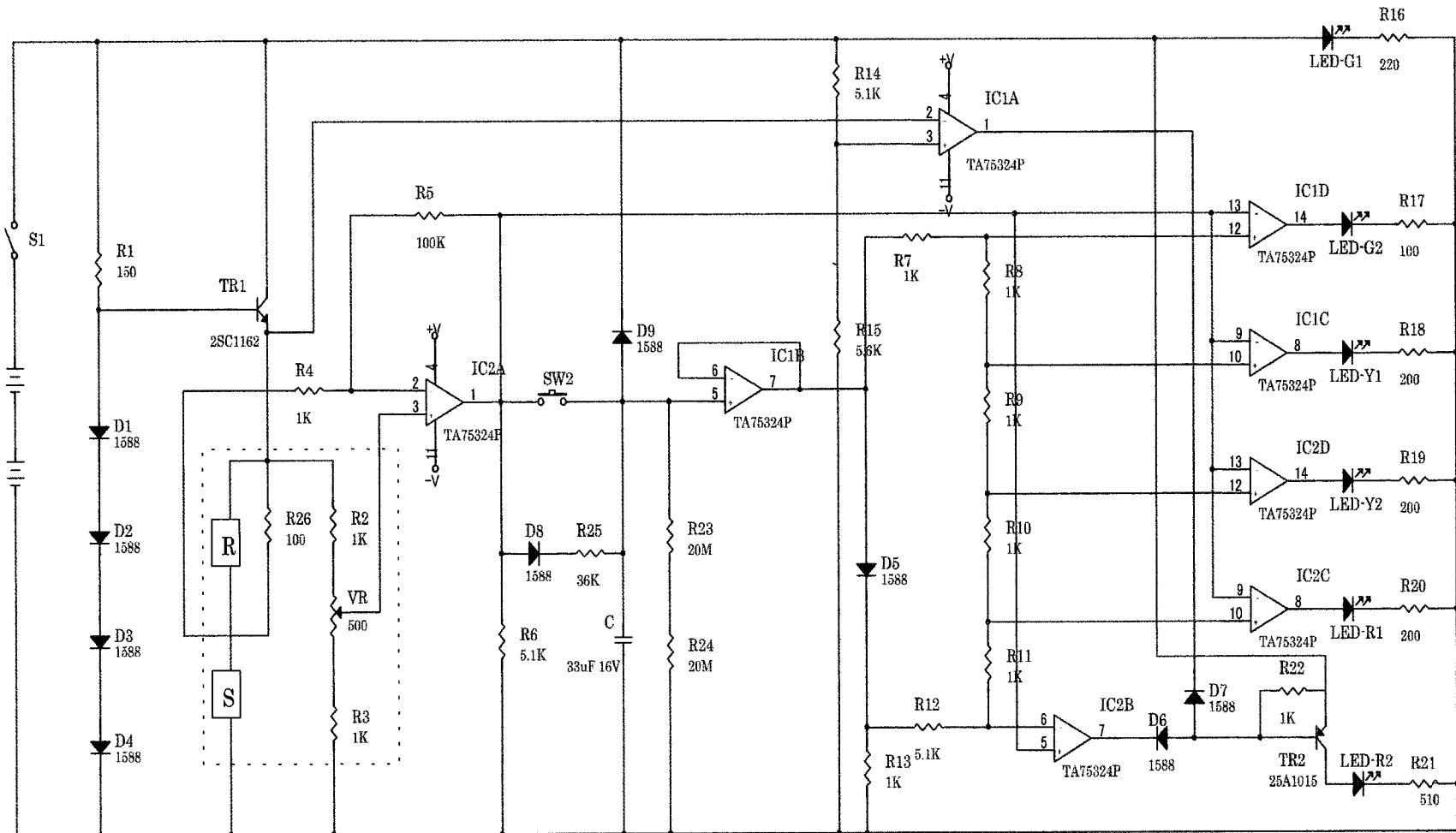


Fig. Recommended circuit diagram of SC0090

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