Handheld Odor Monitor FAQ

KANOMAX
The Ultimate Measurements

Frequently Asked Questions

1. What is the correlation between the odor strength value from OMX-SRM and value of odor intensity, odor concentration or other odor index?

There is no correlation between the indicated value of OMX-SRM and value of human sense of odor intensity, odor concentration or other odor index. OMX-SRM indicates relative value by comparing odor gas to purified air. This measurement is based on our original methodology. "Smell" is the information by human sense (sensitivity value), and there is no method that can accurately quantify various kinds of smells. There are some expressions such as "odor intensity" and "odor concentration" which are quantified based on human sense of smell. The OMX-SRM focuses on chemical substances contained in a smell and this device shows the relative strength of a smell numerically by using semiconductor gas sensors. The reading shown on display is calculated from the output from gas sensors using our original measurement to generate a numerical coefficient.

2. When OMX-SRM displays value of 300 for strength, what would be "odor intensity" or "odor concentration" in general? Also what unit is used for this figures, ppm?

It is impossible to answer the first question from the perspective of the various points when measuring a compound smell. Even if device displays 300, you may perceive it as "an intense smell" or as "a week smell" depending on the kind of smell.

Smell has the following characteristics;

1.Smell is a gas consisting of multiple ingredients.

2.Smell has different characteristics and there is no correlation with substance concentration and sensitivity value.

3.Also they often impact to one another.

4.The human sense has a relation of being proportional to the logarithm of substance concentration.

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Since semiconductor gas sensors react with substance concentration, it is difficult to acquire correlation with the reading from this device and sensitivity value according to the reason of above (2). For example, see **Table 1** (on the previous page) it is considered that we feel smell of toluene faintly when it is 5ppm although we feel Isovaleric acid faintly

Table 1

	Slightly recognize there is odor	Slightly recognize the odor type	Detect odor easily	Strong odor	Very strong odor
Methylmercaptane	0.0001ppm	0.0007ppm	0.004ppm	0.03ppm	0.02ppm
Hydrogen sulfide	0.0005ppm	0.006ppm	0.06ppm	0.7ppm	8ppm
Trimethylamine	0.0001ppm	0.001ppm	0.02ppm	0.2ppm	3ppm
Acetaldehyde	0.002ppm	0.01ppm	0.1ppm	1ppm	10ppm
Isobutanol	0.01ppm	0.2ppm	4ppm	70ppm	1000ppm
Xylene	0.1ppm	0.5ppmppm	2ppm	10ppm	50ppm
Butyric acid	0.00007ppm	0.0004ppm	0.002ppm	0.02ppm	0.09ppm
Toluene	0.9ppm	5ppm	30ppm	100ppm	700ppm
Valeric acid	0.00005ppm	0.0004ppm	0.004ppm	0.03ppm	0.3ppm

*ppm is the unit used in the figure (above table), but ppm does not correlate to odor strength.

when it is 0.00004ppm. Like these two substances, there is a big difference between the kinds of substances and, therefore, it is impossible to get correlation between sensitivity value and substance concentration.

3. What does "Odor Classification" mean?

It is a reference value for discrimination of different smells by using two gas sensors.

Below Table 2 shows sample values of each odor. This value indicates classification for single component of odor (gas). If figure is greater, it doesn't mean that odor is stronger.

4. How do we use "Odor Classification"?

Please understand the main function of this device is that the relative strength of a smell can be shown numerically. This device can also provide you "Odor Classification" as second function and reference for discrimination of a smell by using two gas sensors The principle is uses the output value from two gas sensors that have different characteristics and provide different output values

When outputs from Sensor A and Sensor B are applied to vertical and a horizontal axis, figure shows degree of the "angle" between the peak of each output and the starting point. When you measure a pure single substance with this device in a chamber and get reading for each substance, you can make your own table, which is correlation table of a substance name and the discrimination reference value.

In case of compound smell, you can not use the above mentioned correlation table, for example when you find similar reading of hydrogen sulfide, you can not consider that it is compound smell and main component is hydrogen sulfide. You can not disregard chemical reaction of combined components and can not consider it is compound smell of hydrogen sulfide mainly.

When measuring the effect of deodorization, or judging when a certain smell is removed, the discrimination reference value can be observed before deodorization. You will find intensity has fallen after deodorization but discrimination reference value would be the same. If you deodorize by the adsorbing methods such as activated carbon, you can explain that the strength level is reduced without a bad smell ingredient's adsorbing uniformly and composition hardly changing.

There is a technique of masking which deodorizes with alcohol or fragrance. In this case, the perceived smell level falls dramatically but this is just, as you know, masking over the smell. Since this device also reacts to alcohol and fragrance, the intensity of the reading is possibly increased.

5. Do temperature and humidity impact the result?

Yes, low humidity results in larger strength level and higher value of classification. High humidity results in smaller strength level and lower value of classification. High temperature tends to generate more gas from measuring container. Low temperature tends to decrease concentration.

6. Why different value return in same condition?

The reasons following below:

a) zero point adjustment.

If zero point is not consistence, result will be different. You can exercise Zero Point Adjustment when you would like to adjust base point while measuring or by adjusting the numeral to 0 (Zero) surely for more accurate measurement. If you cannot start using OMX-SRM in clean ambient or would like to adjust Zero Point in the same condition to get better reproducibility, please take attached air purifying unit on the suction nozzle using tube before this initial settings

Table 2

	When material strength is...	Slightly recognize the odor type
O-xylene	Around 5.7ppm	Between 8 and 29
Acetone	Around 110ppm	Between 30 and 54
Valeric acid	Around 0.25ppm	Between 22 and 58
Butyric acid	Around 0.27ppm	Between 36 and 60
Propionic acid	Around 0.97ppm	Between 35 and 60
Isovaleraldehyde	Around 0.18ppm	Between 35 and 63
Ethanol	Around 100ppm	Between 41 and 67
Acetaldehyde	Around 0.46ppm	Between 36 and 69
Hydrogen sulfide	Around 0.21ppm	Between 36 and 78
Methylmercaptane	Around 0.16ppm	Between 41 and 77
Valeraldehyde	Around 0.62ppm	Between 41 and 66

* Above value is included a wide margin of error. It will be indicated narrower value range in actual measurement.

b) Air includes different odor or gas. If other odors exist behind targeted odor, it will return different value.

c) The elements of odor change. For example, Coffee odor brings multiple results depending on freshness, temperature, humidity and surface are.

7. Why display doesn't come up when it is turned on?

It will take about 2 minutes to warm up sensors to automatically determine standard point while heat-cleaning it at the same time.

8. How to use H range and L range?

Use H(High) range when odor is strong, use L(Low) range when odor is weak. For example, if reading indicates 85 in H range mode, it will indicates 84.6-85.4 in L range mode. L mode is capable to display one decimal point.

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