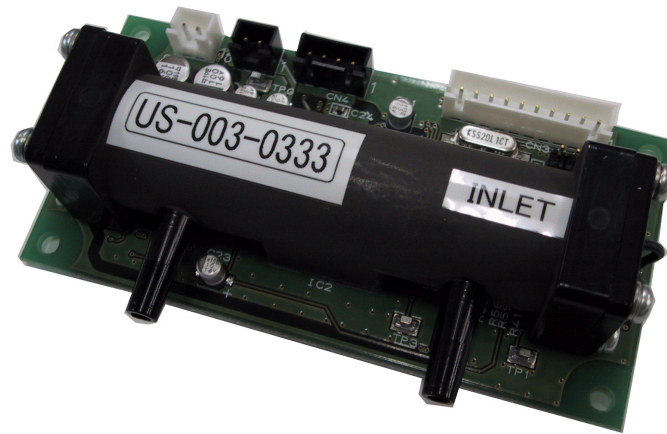# ULTRASONIC GAS MODULE　US-100-5VS type.2 / US-100-12VS type.2

FEATURES

- No consumables and long-lasting
- Calibration and maintenance are unnecessary for a long time
- Warm-up time is short and power saving
- Compact, Light, Easy installation
- Change in gas temperature 5～45℃ are corrected.

- No reference gas
- Continuous measurement possible

EXAMPLE

- O_2 PSA
- Respirator
- Gas mixer
- Charging and Testing
- Shielding gas　　etc.

ULTRASONIC GAS MODULE　US-100-5VS type.2 / US-100-12VS type.2

US-100-5VS type.2 / US-100-12VS type.2 is gas analyzer with ultrasonic sensor for detecting.
This gas module outputs analog voltage by our original calculation after measuring speed of sound and temperature of two gas mixture.

SPECIFICATIONS

WARM-UP TIME	About 10 sec.
SAMPLE TEMP.	Normal temperature (50℃max)
SAMPLE PRESSURE	Atmospheric～+20kPa
FLOW RATE	0.5～5.0L/min
POWER SUPPLY	Less than ±0.3V of DC +5.0V (±1.0V of DC +12.0V)
CONSUMPTION	0.5W max. (DC +12.0V:0.8W max.)
AMBIENT TEMP.	5～45℃／90%RH or less
PIPING	IN OUT :Hose of φ5 ～ 6.5mm in inside diameter
ANALOG OUTPUT	DC0-1V
LINEARITY	Less than ±1% of full scale
REPEATABILITY	Less than ±1% of full scale
RESPONSE TIME	90% reading is within 10sec.
EXTERNAL-DIMENSIONS	W100×D50×H25.6

PERFORMANCE

	MEASUREMENT RANGE	MEASURABLE-MINIMUM DIGIT
He/N2	0～ 50%	0.1 %
He/Air	0～ 50%	0.1 %
O2/N2	0～100%	0.4 %
Xe/Ar	0～100%	0.05%
Kr/N2	0～100%	0.05%
CF4/N2	0～100%	0.05%
Xe/N2	0～100%	0.03%
SF6/N2	0～100%	0.03%
CO2/Ar	0～30%	0.1 %
Please contact us for other gas composition		

※As is often the case with changing this specification for improvement without permission
※It is theoretically possible to analyze various two gas combination

PRINCIPLE

Speed of sound what carries in the gases depends on molecular weight of gas.
ULTRASONIC SENSOR calculates average molecular weight that is changed by concentration and temperature of mixed gas, and indicates concentration of mixture of two gases.

Speed of sound goes as follows.
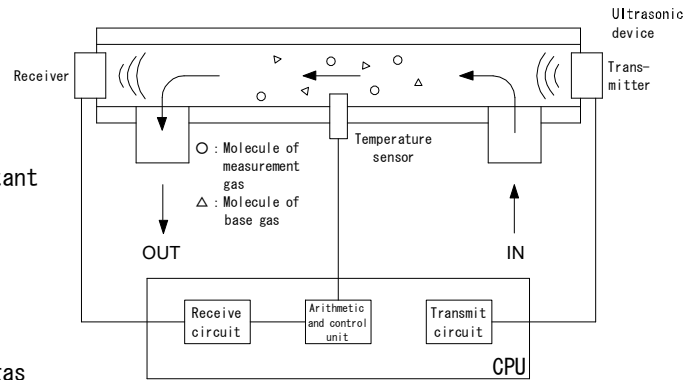
$$V = \sqrt{(\gamma \times R \times T \div M)}$$

where

γ is the ratio of heat capacity at constant volume to heat capacity at constant pressure
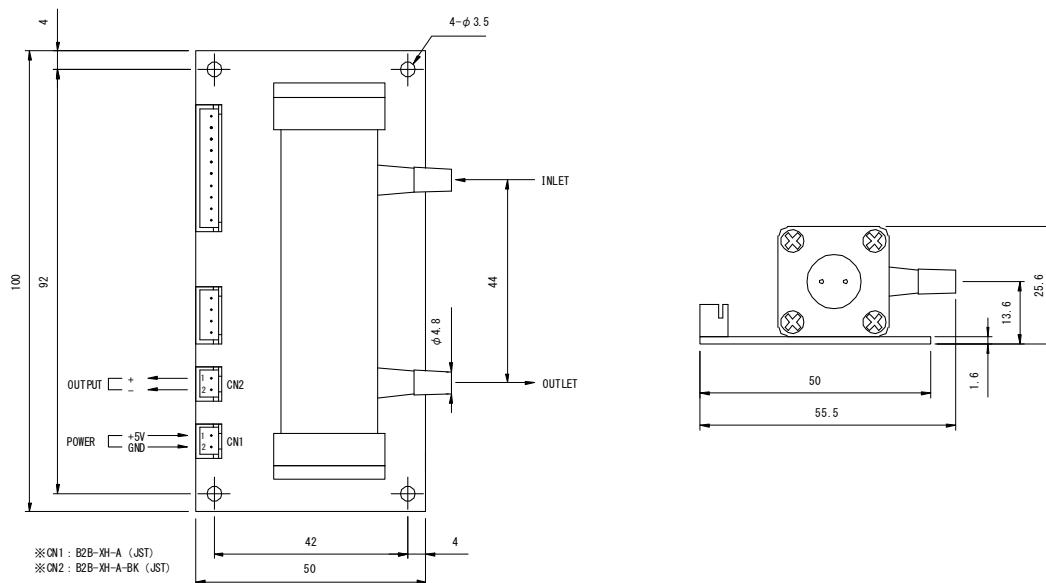
R is constant of gas (8.314)

T is Absolute temperature of gas

M is average molecular weight of mixed gas

DIMENSION

※CN1 : B2B-XH-A (JST)
※CN2 : B2B-XH-A-BK (JST)