

ULTRASONIC PORTABLE GAS ANALYZER US- I



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 to carry*
- *No reference gas*
- *Continuous measurement possible*
- *Free choice of output scaling*

- *AC adapter included*
- *Special clamps for panel mounting (Clamps are not included in the price)*

EXAMPLE

- *Gas mixer*
- *Charging and Testing*
- *Gas purifier*
- *Shielding gas* *etc.*

ULTRASONIC PORTABLE GAS ANALYZER US- I

US- I is gas analyzer with ultrasonic sensor for detecting.

This gas analyzer outputs and indicates gas concentration by our original calculation after measuring speed of sound and temperature of two gas mixture

SPECIFICATIONS

INSTALLATION	Portable, Panel mount
WARM-UP TIME	About 10sec.
SAMPLE TEMP.	Normal temperature (50°Cmax)
SAMPLE PRESS.	atmosphere ~ +20kPa
FLOW RATE	0.5~2.0L/min
POWER SUPPLY	Analyzer: DC11~48V AC adapter: AC100~240V 50/60Hz
CONSUMPTION	6W max.
AMBIENT TEMP.	5~45°C / less than 90%RH
PIPING	IN OUT : Rc1/4
ANALOG OUTPUT	D. C. 4~20mA
ALARM	Concentration alarm : 2
LINEALITY	Less than ±1% of full scale
REPEATABILITY	Less than ±1% of full scale
RESPONSE TIME	90% reading is within 10sec
MASS	Approx. 1.7kg
EXTERNAL-DIMENSIONS	W172×D184×H90 (except tilt leg)

PERFORMANCE

	MEASUREMENT RANGE	MEASURABLE-MINIMUM DIGIT
H ₂ /N ₂	0~ 50%	0.04 %
He/N ₂	0~ 50%	0.04 %
He/Air	0~ 50%	0.04 %
O ₂ /N ₂	0~100%	0.2 %
Xe/Ar	0~100%	0.02 %
Kr/N ₂	0~100%	0.02 %
CF ₄ /N ₂	0~100%	0.02 %
Xe/N ₂	0~100%	0.01 %
SF ₆ /N ₂	0~100%	0.01 %
CO ₂ /Ar	0~ 50%	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 & DIMENSION

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.

$$V = \sqrt{\gamma \times R \times T \div M}$$

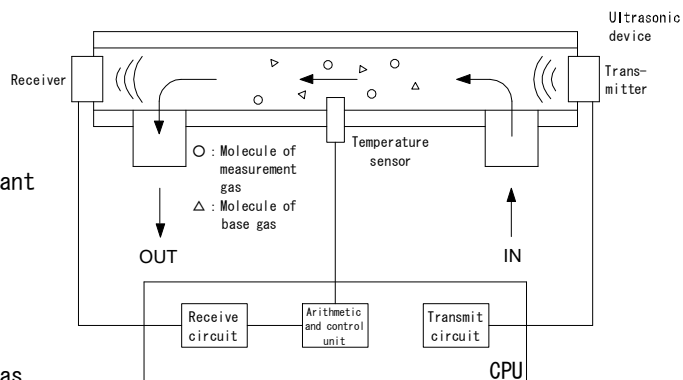
where

γ is the ratio of heat capacity at constant volume to heat capacity at constant pressure

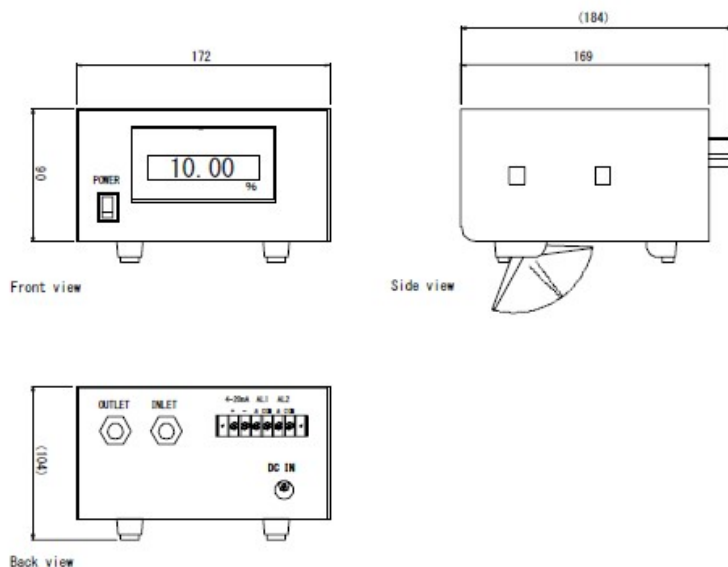
R is constant of gas (8.314)

T is Absolute temperature of gas

M is average molecular weight of mixed gas



DIMENSION



REFERENCE

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