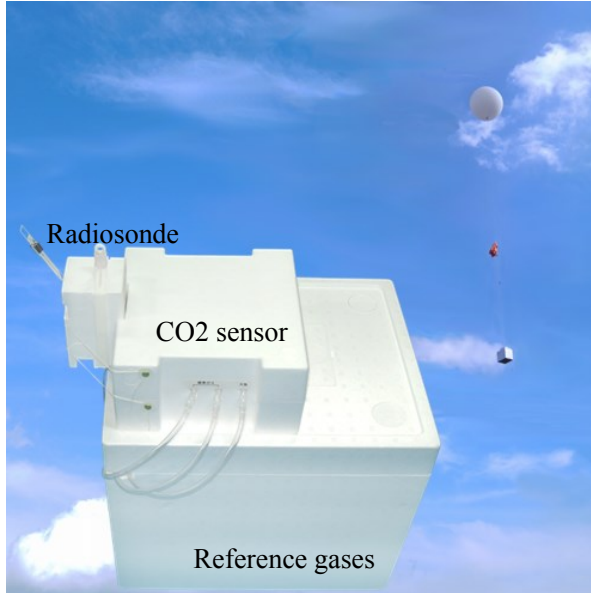


CO2 sonde

MCD-10



Outline

The world-first balloon-borne CO₂ sonde, the combination with GPS radiosonde and small NDIR type CO₂ sensor, was developed to measure the vertical profile of CO₂. CO₂ sonde can be operated with conventional weather balloon regardless of the observation site (e.g., isolated areas or remote islands), weather condition and time (day/night).

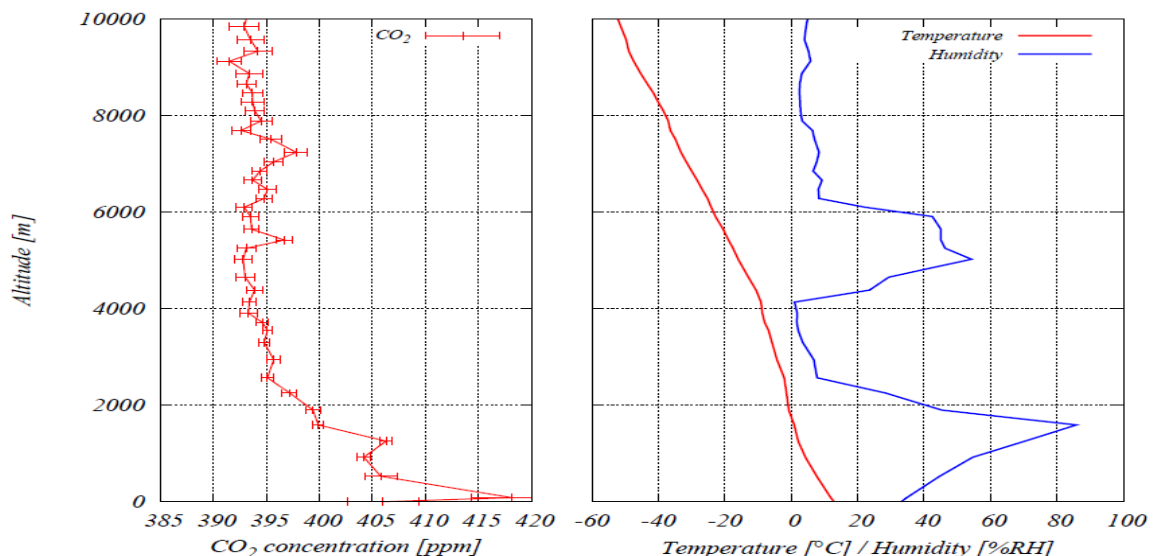
CO₂ concentration is measured in the troposphere (0—10 km) with about 300 m vertical resolution. Adoption of NDIR sensor facilitates easy preparation for preflight and operation. Furthermore, the embedded two reference gases achieve high measurement accuracy of less than 1ppm.

CO₂ sonde has been utilized for 1) Validation with other observation method such as aircraft, tower or satellite (GOSAT etc.), 2) Evaluation of CO₂ absorption/emission in the forest, or 3) Long-term CO₂ monitoring for climate change prediction and global warming prevention activity, etc.

Features:

- Adopting high accurate NDIR type CO₂ sensor
- Achieved 1 ppm measurement accuracy by loading two reference gases with CO₂ sensor
- Lightweight package, below 2 kg, can be operated with weather balloon
- Balloon-borne instrument usable under any weather condition, day& night and in any place
- Compatible with ground receiving system RD-08AC and sounding software MGPS-R

Sounding Examples



Specifications

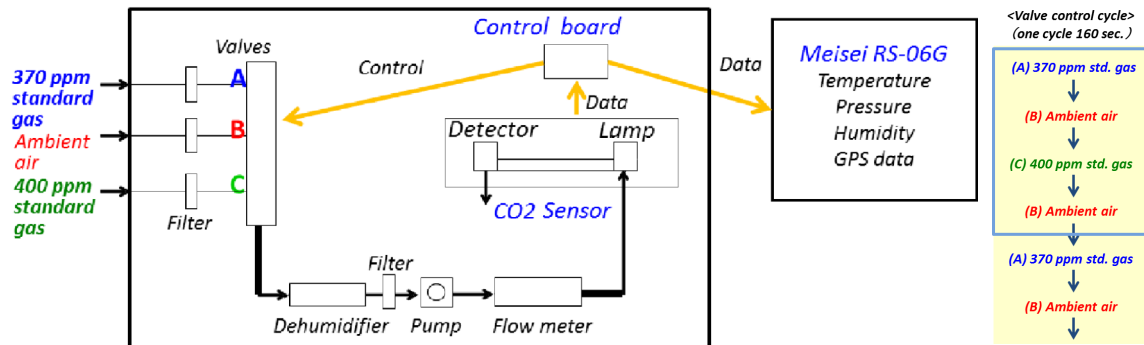
CO ₂	Sensor method	NDIR (Non Dispersive Infrared) 4.0 and 4.3 micro m	Output	Data	25 byte/sec	
	Range	350 ppm to 450 ppm * ¹	Pump	Flow rate	300 ml/min	
	Resolution	0.1 ppm		Type	Piston	
	Vertical resolution	150 to 300 m * ²	Power	Voltage	4.5VDC x 3	
	Time resolution	80 sec (default)		Current	1,000mA approx.	
	Accuracy	< 1 ppm (0 to 5,000 m) < 1.5 ppm (5,000 m to 10,000 m)	Gas pack	Volume	8 l x 2	
	Operation time	< 60 min * ³	Dimensions and Weight	Dimensions	346(W) x 243(D) x 290(H) mm	
				Weight	2.0 kg approx.	

*1): The range depends on the density of two kinds of standard gas.

*2): The vertical resolution depend on the rise speed of the radiosonde. The recommended rise speed is 3m/s.

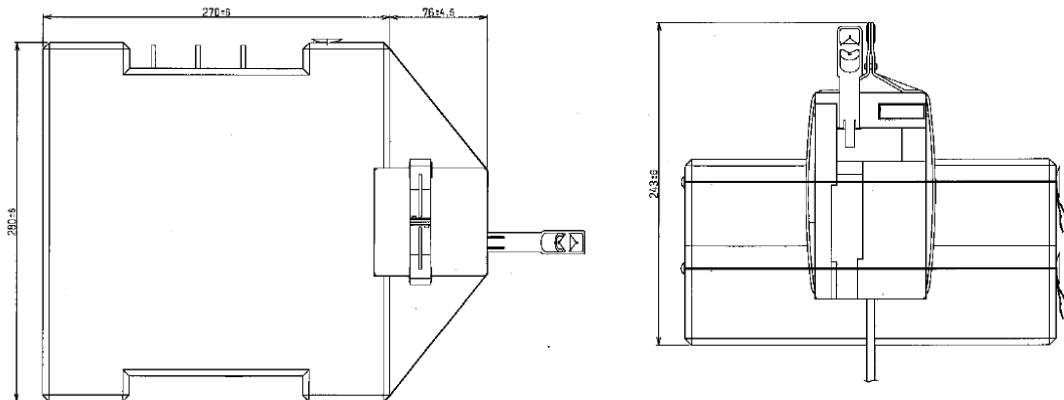
*3): The operation time depend on size and the quantity of a carried standard gas pack. The recommended usage is 8 liters of standard gas into an aluminum gas pack of 20liters.

Block Diagram



Dimensions

Unit (mm)



⚠ Cautions

- For safe and correct usage, please read the "Operation Manual" prior to the use of the products.
- The specifications and appearances might be changed without prior notice, which please understand.
- The specifications shown in the catalog are of our standard products. We are pleased to customize it to meet customer's requirements. For the details, please contact us.
- Please understand in advance that our company cannot assume the responsibility of any claims made by the third party about any monetary damages or any loss of profits arising out from the use of our products.
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The specifications this catalog are current as of September 2018

No. MSPA4-034 M1809

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