

CO₂ Ambient CO₂ Monitor APCA-370



Features

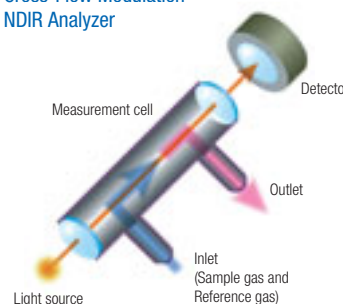
- The Ambient CO₂ Monitor continuously measures CO₂ and provides high precision and accuracy in long term measurement with exceptionally low drift by a combination of cross flow modulation, and infrared-absorption technology.
- Cross flow modulation and infrared absorption technology eliminates the need for adjustment by optical alignment.
- HORIBA's unique reference gas purifier* generates CO₂-free gas internally to reuse as zero gas which enhances performance in measurement. * U.S. Patent No. 9962647

Principle

Cross flow modulation, Infrared (NDIR) absorption technology

Conventional technology uses an optical chopper and dual cells to obtain modulation signals. Instead, the Ambient CO₂ Monitor uses cross flow modulation which simply consists of solenoid valve, an infrared beam, the cell and the detector. During measurement, a solenoid valve alternately directs the sample gas and the reference gas to the cell within the analyzer. The use of one cell and one light source for both sample and reference gas allows precise measurement without generation of zero-drift.

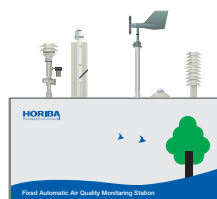
Cross-Flow Modulation
NDIR Analyzer



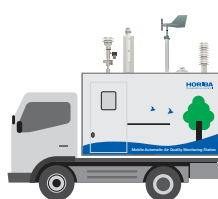
Applications

- Ambient air quality monitoring
- Greenhouse gas (GHG) research
- Vegetable factory

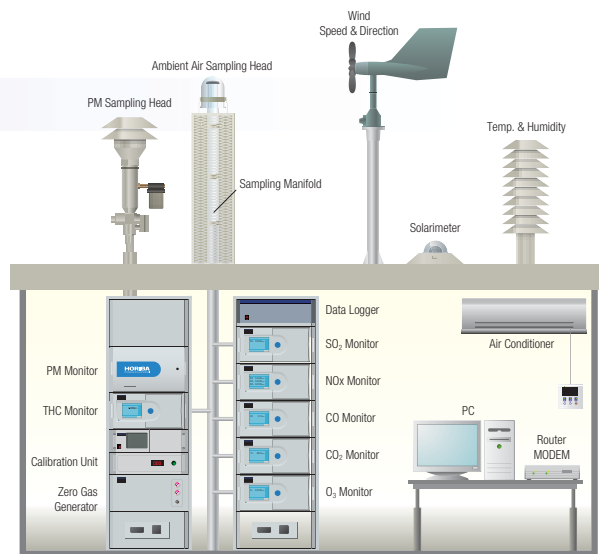
2 types of stations are available



Fixed Station



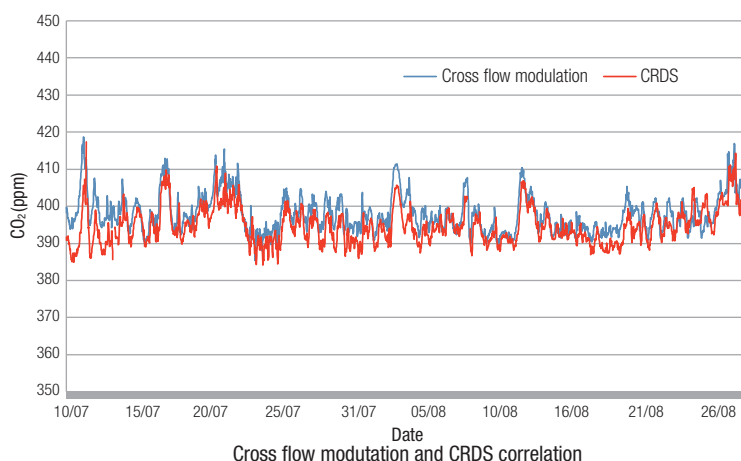
Mobile Station



Example of Air Quality Monitoring Station (AQMS)

Comparison of technologies

Cross flow modulation NDIR technology is not affected by fluctuating ambient temperature and performs high sensitivity measurement in both laboratory conditions and in the field. Cavity Ring-Down Spectroscopy (CRDS) technology is easily influenced by ambient temperature fluctuations and requires well-prepared laboratory conditions. Cross flow modulation provides comparable results with CRDS and also provides consistent results under laboratory conditions as well as severe field conditions.



Specifications

Model	Ambient CO ₂ Monitor
Measurement target	Carbon dioxide (CO ₂) in ambient air
Measuring principle	Cross modulation type non-dispersive infrared absorption method
Range	0 ppm to 500/1000 ppm
Minimum detection sensitivity	0.5ppm (2σ)
Reproducibility (repeating accuracy)	±1.0% of the full scale
Linearity (readout error)	±2.0%
Zero drift*	±0.1 ppm/day ±2.0 ppm/week
Span drift*	±2.0% of the full scale/day ±3.0% of the full scale/week
Response rate	60 sec or shorter (T ₉₀ from the inlet)
Sample collection rate	Approximately 0.7 L/min
Display	Measured value, alarm, time, alarm history, calibration history, etc.
Alarms	Zero calibration, Span calibration, etc.

* Ambient temperature change: within 5°C



The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



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