

Carbon Monoxide Monitor

APMA-380 CO

For Your Needs in Air Quality Monitoring



Ultimate Performance

- Cross-modulation NDIR technology provides excellent sensitivity, stability and robustness
- Real-time continuous measurement
- Wide measurement range with up to 6 ranges selectable, minimum 0-5 ppm and maximum 0-300 ppm
- Compensation detector adopted for elimination of interference by coexisting gases
- Enhanced Lower Detection Limit and response time

Connected & Intelligent

- Remote operation from various devices: PC, tablet or smartphone
- Modbus[®] TCP and RTU communication
- USB flash drive for data storage

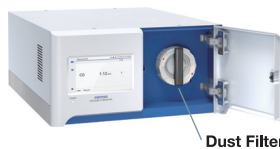
* Standard specification is wired LAN connection. For wireless connection, separate device is required.



User-Friendly Interface & Functionality

- Durable 7-inch wide color touch screen LCD with intuitive interface and trend graph
- Selectable metrics (ppb, $\mu\text{g}/\text{m}^3$, ppm, mg/m^3), response time (moving average value), and calculation method
- Programmable dilution ratio
- Dust filter accessible from the front panel for easy daily maintenance

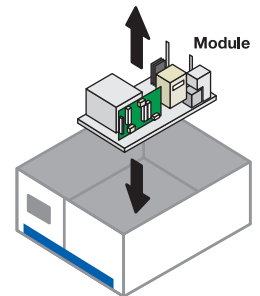
Trend Graph Screen



Dust Filter

Module Design for Various Needs & Customizations

- Each standalone module, powered by DC 24 V, is capable of providing measurement results
- Customizable for stationary, wall mount, mobile or portable installations
- Easy integration of multiple AP-380 measurement modules into air quality monitoring station or dilution continuous emission monitoring system (CEMS)



Reduced Operational Expense & Maximum Uptime

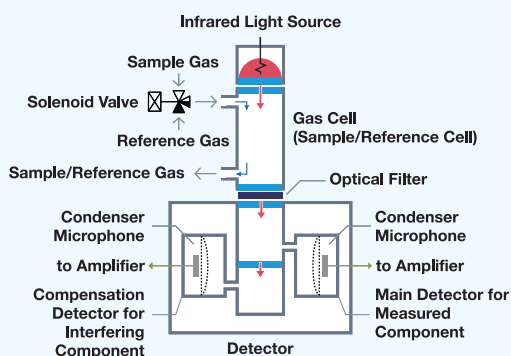
- Remote diagnostics allow fast and effective maintenance
- Internal parts timer with alarm facilitates timely parts replacement, optimizing parts stock
- Module design enables easy and fast replacement at field
- High-quality, long lifetime parts for maximum uptime

Environment-Friendly Design

- Remote operation reduces emission from transportation, contributing to the reduction of carbon footprint
- Approx. 15%* reduction in power consumption
- Long life parts reduce environmental load

* In-house comparison with previous model.

Measurement Principle



Cross-Modulation Non-Dispersive Infrared Absorption (NDIR)

Cross-modulation NDIR is a measurement method that combines the NDIR principle of gas concentration measurement with a modulation mechanism. NDIR relies on the principle that different molecules absorb infrared radiation at specific wavelength, allowing the measurement of the concentration for various gas components. The HORIBA original cross-modulation mechanism involves alternating the introduction of sample gas and reference gas into the same gas cell by switching a solenoid valve at regular time intervals. The key advantage of this method to the chopper method with a rotation mechanism lies in its smaller zero drift and elimination of the need for optical adjustment. Moreover, the APMA-380 employs a detector equipped with a main detector (condenser microphone) for the measured component (carbon monoxide) and a compensation detector to minimize the impact of interfering component on the concentration measurement of the measured component. As a result, the APMA-380 achieves highly accurate measurement and maintains long-term stability.

APMA-380 Specifications

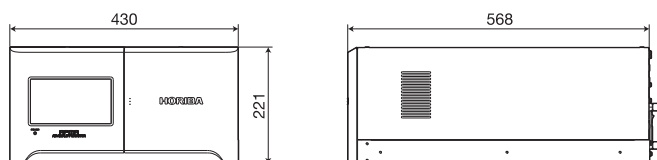
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|---|--|
| Component | Carbon monoxide (CO) |
| Measuring principle | Cross-Modulation Non-Dispersive Infrared Absorption (NDIR) |
| Measurement range | 0-5/10/20/50/100/300 ppm (up to 6 ranges selectable, auto-range) |
| Lower Detection Limit (2σ) | < 0.02 ppm* ¹ |
| Measurement unit | ppb, ug/m ³ , ppm, mg/m ³ |
| Sample gas flow rate | Approx. 1.5 L/min |
| Repeatability | ±1.0% of full scale |
| Linearity | ±1.0% of full scale |
| Zero drift | < 0.02 ppm (24 h) |
| Span drift | < 0.5% of full scale (24 h) |
| Response time (T₉₅) | < 30 s from the inlet* ¹ |
| Display | 7-inch color LCD with touch panel |
| Communication | Ethernet × 2 (Modbus [®] TCP), RS-232C × 1 (Modbus [®] RTU), USB flash drive × 1 |
| Analog output (option) | Maximum : 3 channels (insulated) DC 4-20 mA, DC 0-0.1 V, DC 0-1 V, DC 0-5 V or DC 0-10 V |
| Digital output (option) | Relay contact output for range 3 channels, relay contact output for other 6 channels |
| Digital input (option) | Maximum : 4 channels, non-isolated input |
| Installation environment | Operation temperature : 0-40°C (32-104°F), relative humidity : 85% or less |
| Temperature and pressure compensation | With |
| Sampling pump and filter | Internal |
| Power supply | AC 100-240 V±10% (max. voltage: AC 250 V), 50/60 Hz, consumption 90 W |
| Dimensions, weight | 430 (W) x 568 (D) x 221 (H) mm, Approx. 16 kg |
| Compliance | CE, UKCA, KC, FCC, China RoHS |

*1 : Digital filter

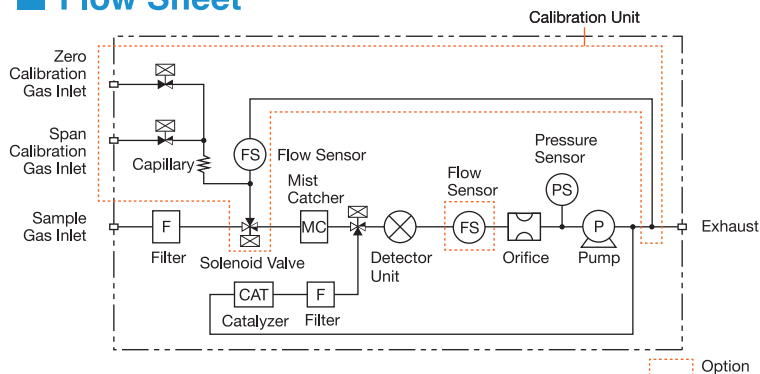
• If there is other measurement range requirement than shown above, please consult HORIBA

• Modbus is a trademark of Schneider Electric USA Inc.

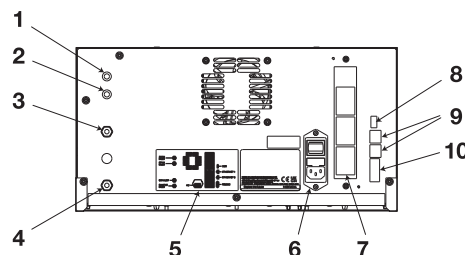
Dimensional Outline (Unit: mm)



Flow Sheet



Rear Panel Configuration



1. Zero calibration gas inlet (option)
2. Span calibration gas inlet (option)
3. Exhaust
4. Sample gas inlet
5. Guide label
6. AC power connector
7. I/O terminal block
8. USB flash drive connector
9. Ethernet connector
10. RS-232C connector

Options

- I/O terminal block (Analog input/output, digital input/output)
- Pressurized calibration unit
- Flow sensor
- USB flash drive
- Mounting parts (rubber feet, brackets and slide rails, brackets for slide rails)

Under Certification: TÜV, US EPA, MCERT, CAEPI, KTL, JMOE

IMS

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 ISO45001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.

⚠ Please read the operation manual before using this product to assure safe and proper handling of the product.

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HORIBA

HORIBA, Ltd.
Group Head Office
 2 Miyanohigashi-cho, Kisshoin, Minami-ku, Kyoto, 601-8510, Japan
 Phone: 81 (75) 313-8121 Fax: 81 (75) 321-5725
<https://www.horiba.com>



Worldwide locations of HORIBA