



CA Ultimate Performance

- Flame ionization detector with selective combustion provides excellent sensitivity, stability and robustness
- Simultaneously measures THC, CH4 and NMHC
- Real-time continuous measurement
- Single detector eliminates zero drift
- Wide measurement range with up to 5 ranges selectable, minimum 0-5 ppmC and maximum 0-100 ppmC
- Enhanced Lower Detection Limit and response time

User-Friendly Interface & Functionality

- Durable 7-inch wide color touch screen LCD with intuitive interface and trend graph
- Selectable response time (moving average value), and calculation method
- Programmable dilution ratio
- Dust filter accessible from the front panel for easy daily maintenance





Reduced Operational Expense & Maximum Uptime

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

((D)) 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.





- Remote operation reduces emission from transportation, contributing to the reduction of carbon footprint
- Approx. 10%* reduction in power consumption
- Lightweight design. Weight reduced on approx. 15%*
- Long life parts reduce environmental load

* In-house comparison with previous model.

Hydrogen-Generator OPGU-7000 Series

Hydrogen generator for FID

- Generates high-purity hydrogen gas by electrolysis of pure water (99.999% or higher, dew point -65°C)
- Does not require sodium hydroxide solution
- Compact design only 15 cm width



Ignition Electrode Exhaust Collector Electrode Hydrogen Flame Jet Nozzle Fuel Gas (Hydrogen) Sample Gas

Flame Ionization Detector (FID) Method with Selective Combustion

Flame Ionization Detector (FID) is a measurement method that relies on the ionization reaction triggered by a hydrogen flame. When hydrocarbons (HC) are introduced into a high-temperature hydrogen flame generated by a fuel (such as hydrogen) and an auxiliary combustion gas (air) at the tip of a jet nozzle, the hydrocarbons undergo oxidation, resulting in ionization reaction. By collecting and detecting these ions as electric current, the gas concentration of hydrocarbons can be measured. In the case of a multi-component gas analyzer measuring total hydrocarbons (THC), methane (CH4), and non-methane hydrocarbons (NMHC) in the sample gas, the FID is combined with a selective combustion mechanism. The selective combustion mechanism operates as follows: the sample gas is first introduced into the hydrogen flame to measure THC. Then, a NMHC-cutter is used to burn all hydrocarbons in the sample gas except for CH4, creating a gas mixture where the only remaining hydrocarbon is CH4. This gas mixture is subsequently introduced into the hydrogen flame for CH4 measurement. Finally, a mechanism is employed to introduce a zero-reference gas into the hydrogen flame to reduce zero drift. Through this process, THC and CH4 are measured using the FID, and the concentration of NMHC is calculated based on the difference between concentrations of TCH and CH4. By employing the above-mentioned mechanism , the APHA-380 achieves high measurement accuracy and enables the concentration measurement of multiple aases.

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APHA-380 Specifications

Component	Methane, non-methane hydrocarbons, total hydrocarbons (CH4, NMHC, THC)
Measuring principle	Flame Ionization Detector Method (FID) with Selective Combustion
Measurement ranges	0-5/10/20/50/100 ppmC (up to 5 ranges selectable, auto-range)
Lower Detection Limit	< 0.02 ppmC*1
Measurement units	ppmC, ppm
Sample gas flow rate	Approx. 0.8 L/min
Repeatability	±1.0% of full scale
Linearity	±1.0% of full scale
Zero drift	< 0.025 ppmC (24 h)
Span drift	< 0.5% of full scale (24 h)
Response time (T95)	< 40 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°F to 104°F), relative humidity : 85%RH or less
Sampling pump and filter	Internal
Power requirements	AC 100-240 V±10% (max. voltage: AC 250 V) 50/60 Hz, consumption 230 W
Dimensions, weight	430 (W) x 568 (D) x 221 (H) mm, Approx. 26 kg
Compliance	CE, UKCA, KC, FCC, China RoHS

^{*1 :} Digital filter

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

· Modbus is a trademark of Schneider Electric USA Inc.

Dimensional Outline (Unit: mm)



Flow Sheet



Rear Panel Configuration



- 1. Zero calibration gas inlet
- 2. Span calibration gas inlet
- 3. Exhaust
- 4. Fuel (H₂) inlet
- 5. Sample gas inlet
- 6. Guide label

Options

I/O terminal block (Analog input/output, digital input/output)

7. AC power connector

9. USB flash drive connector

8. I/O terminal block

10. Ethernet connector

11. RS-232C connector

- Calibration unit
 Flow sensor
 USB flash drive
- Mounting parts (rubber feet, brackets and slide rails, brackets for slide rails)

Option

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

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.

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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 http://www.horiba.com

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