Total System for Regulation Compliance and Engine/Vehicle R&D

OBS-ONE is the latest Portable Emissions Measurement System designed for engine/vehicle certification under real road conditions. It measures concentrations of emissions (CO, CO₂, THC, NOₓ, NO₂), particulate matter, exhaust flow rate, GPS data, environmental conditions (atmospheric temperature, humidity and pressure) and calculates mass emissions.

OBS-ONE features the highly adaptable, intelligent operating platform called “HORIBA ONE PLATFORM” which integrates other OBS-ONE series product and those data.

HORIBA has developed broad emission test applications for certification and engine/vehicle R&D, such as simulating a real-world driving event in the test cell with the Test Automation System- STARS. This simulation requires data combined from the OBS-ONE and a drive recorder.

LDV Type

HDV Type

LDV : Light Duty Vehicle
HDV : Heavy Duty Vehicle
Simple and Flexible
Safe, User-friendly System

Easy to Install
- Easily mounted on any vehicle (modular and front access design)
- One-touch fitting for module and cable connections

Stable Operation Over Long Driving Periods
- Low power consumption for long operation
- Battery can be changed to AC power supply or backup battery without being powered off by using power exchange unit

Safe
- Safe in real driving without bottles (LDV type)
- Equipped with emergency button to stop power and gas supply

Accurate
- Accurate over a variety of environmental variables (atmospheric temperature, atmospheric pressure, vibration)*1
- UPS (Uninterruptible Power Supply) protects measurement data in the case of the battery cut-off unexpected

*1 Please refer to product overview in the next page

System Configuration

OPTION
- PM measurement unit*2
- PN measurement unit*2
- THC/CH4 analyzer
- THC analyzer

*2 Please refer to another brochures
Complies with the latest regulation requirements

- **LDV**: EU Euro 6 (Real Driving Emissions)
- **HDV**: EU Euro VI (Commission Regulation (EU) No.582/2011)
- **US EPA CFR 1065 subpart-J**

**PEMS Applications**

- **Measurement**
  Comprehensive test package includes self-diagnosis, quality check, and sensitivity calibration before testing.
  Guides the entire process (preparation, measurement data post processing, etc.) from before to after testing.
  - [Real-time Validation and Guidance]
    - Checks measuring data during testing to avoid invalid results
    - Driver can concentrate on driving without any operation once measurement is started

- **Data Post Processing**
  Complicated process of calculation and analysis made simple
  - Suitable calculation and result output for LDV/HDV
  - Makes test report for certification
  - Shows the camera-recorded drive replay and the GPS map related to measured data
  - Complies with ASAM-ODS* standard
  
  *ASAM-ODS : Association for Standardization of Automation and Measuring Systems – Open Data Service

**Integrated Operation Software “HORIBA ONE PLATFORM”**

**Integrated Device Management Controller (DMC)** with HORIBA ONE series products

The developed software for the OBS-ONE is integrated with the same operating platform as the MEXA-ONE, CVS-ONE and other devices. The intuitive, ergonomic design of the software platform makes system operation easier. System control and a complete system view of other OBS-ONE units are available from one single display.

- User-friendly screen configuration and layout offer both measurement efficiency and convenience

- Not-to-exceed (NTE) test
- QC (Quality check) automatic sequence
- Post Processing Moving Average Window Work Method (Result) HDV
- Window Work Method LDV
- Device View
R&D for Engine, Powertrain and Chassis
Achieving real-world simulation in the test lab

Test Lab x Real-world

OBS-ONE provides real driving emission test as well as real driving simulation in the test lab by utilizing STARS. This comprehensive solution ensures accurate emissions data from both real-road and laboratory testing conditions.
Product Overview

<table>
<thead>
<tr>
<th>Item</th>
<th>LDV Type</th>
<th>HDV Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Component</td>
<td>CO, CO₂, NO/NOₓ (or NO, NO₂, NOₓ)</td>
<td>CO, CO₂, NO/NOₓ (or NO, NO₂, NOₓ), THC (or THC, CHₓ)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Approx. W 350 × D 470 × H 330 mm</td>
<td>Approx. W 350 × D 470 × H 480 mm</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>DC 22~28 V</td>
<td></td>
</tr>
<tr>
<td>Power Consumption (at static states)</td>
<td>Approx. 0.25 kW</td>
<td>Approx. 0.5 kW</td>
</tr>
<tr>
<td>Efficiency (Deep-cycle, sealed lead battery)</td>
<td>DC 24V 35 Ah (5 hour rate), Operation time: approx. 2.5 hours</td>
<td>DC 24V 100 Ah (5 hour rate), Operation time: approx. 3.5 hours</td>
</tr>
<tr>
<td>Weight (Main unit)</td>
<td>Approx. 32 kg</td>
<td>Approx. 50 kg</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>Temperature: -10 ~ 40°C, Relative humidity: &lt; 80%, Altitude: 0 ~ 2000 m above sea level</td>
<td>Temperature: 0°C ~ 40°C, Relative humidity: &lt; 80%, Altitude: 0 ~ 2000 m above sea level</td>
</tr>
</tbody>
</table>

1. Excluding handle and projection
2. Length of heated inlet tube LDV type: 2.5 m; HDV type: 6 m, Atmospheric temperature: 25°C
3. Nickel hydride battery is an optional unit
4. Temperature 20°C and depending on battery conditions
5. Please contact HORIBA if temperature is below 0°C
6. NO/NOₓ: Switchable measurement
7. NO, NO₂: Simultaneous measurement. NOₓ: Calculation of NO and NO₂
8. Exhaust flow rate can be taken by OBD interface unit

Wherever you need us World-wide Sales & Service Network

We are always provide assistance with specifications and applications. We can also assist in laboratory operation by providing technical information, additional training courses, servicing and maintenance support. Contractual preventative maintenance programs are available upon request.

Contact your nearest HORIBA office or authorized representative for details.

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Analyzers and Sensors

<table>
<thead>
<tr>
<th>Component / Item</th>
<th>Measurement Principle</th>
<th>Measurement Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Heated NDIR</td>
<td>0–0.5 ~ 10 vol%</td>
</tr>
<tr>
<td>CO₂</td>
<td>Heated NDIR</td>
<td>0–5 ~ 20 vol%</td>
</tr>
<tr>
<td>NO/NOₓ</td>
<td>Heated CLD</td>
<td>0–1.0 ~ 3000 ppm</td>
</tr>
<tr>
<td>NO, NOₓ, NO₂</td>
<td>Heated-dual CLD</td>
<td>0–1.0 ~ 3000 ppm</td>
</tr>
<tr>
<td>THC</td>
<td>Heated FID</td>
<td>0–100 ~ 10000 ppm</td>
</tr>
<tr>
<td>THC, CHₓ</td>
<td>Heated-dual FID</td>
<td>0–100 ~ 10000 ppm</td>
</tr>
<tr>
<td>Sampling Method</td>
<td>Wet measurement</td>
<td>-</td>
</tr>
<tr>
<td>Exhaust Flow Rate</td>
<td>Pitot flow meter</td>
<td>0.2–0.5 m³/min</td>
</tr>
</tbody>
</table>

Standard Signal Measurements
- Exhaust temperature, Exhaust pressure, Atmospheric pressure, Atmospheric temperature, Atmospheric humidity, GPS signal, Speed