

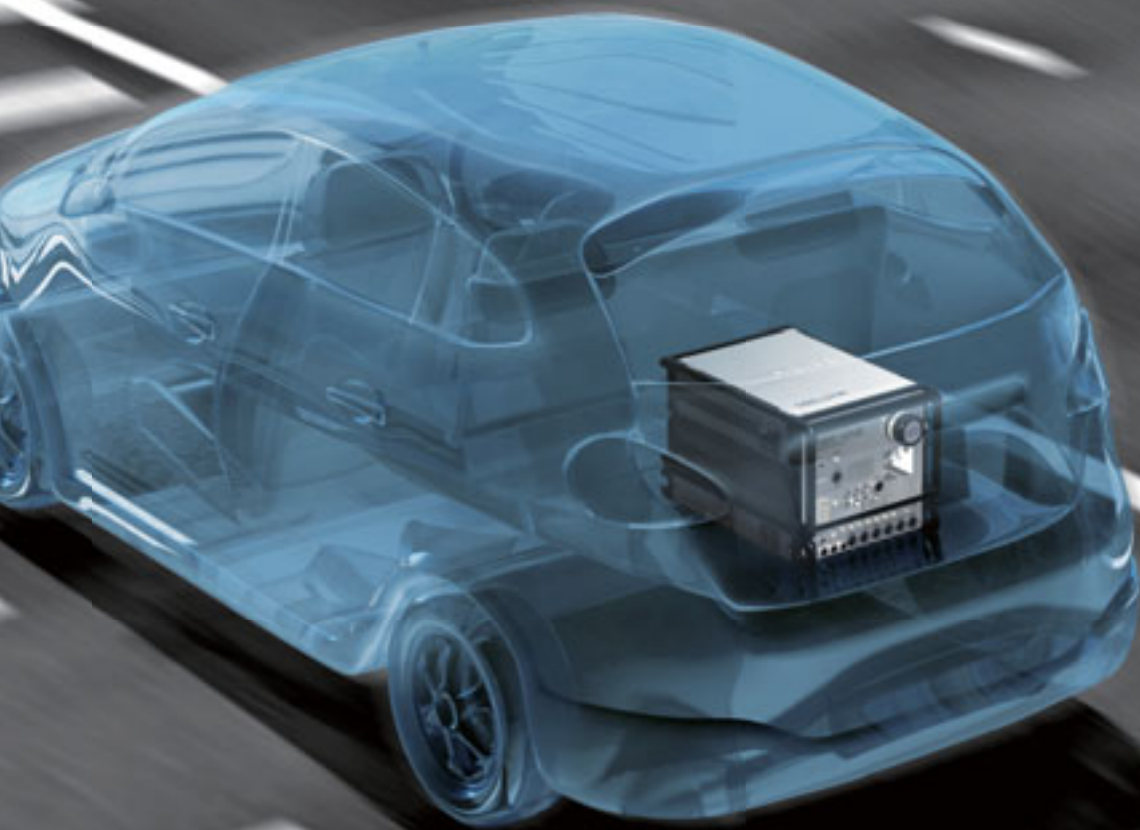
# HORIBA

Automotive Test Systems

N E W

ON-BOARD EMISSIONS MEASUREMENT SYSTEM

# OBS-ONE



# 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)\*
- UPS (Uninterruptible Power Supply) protects measurement data in the case of the battery cut-off unexpected

\*Please refer to the specification in the next page

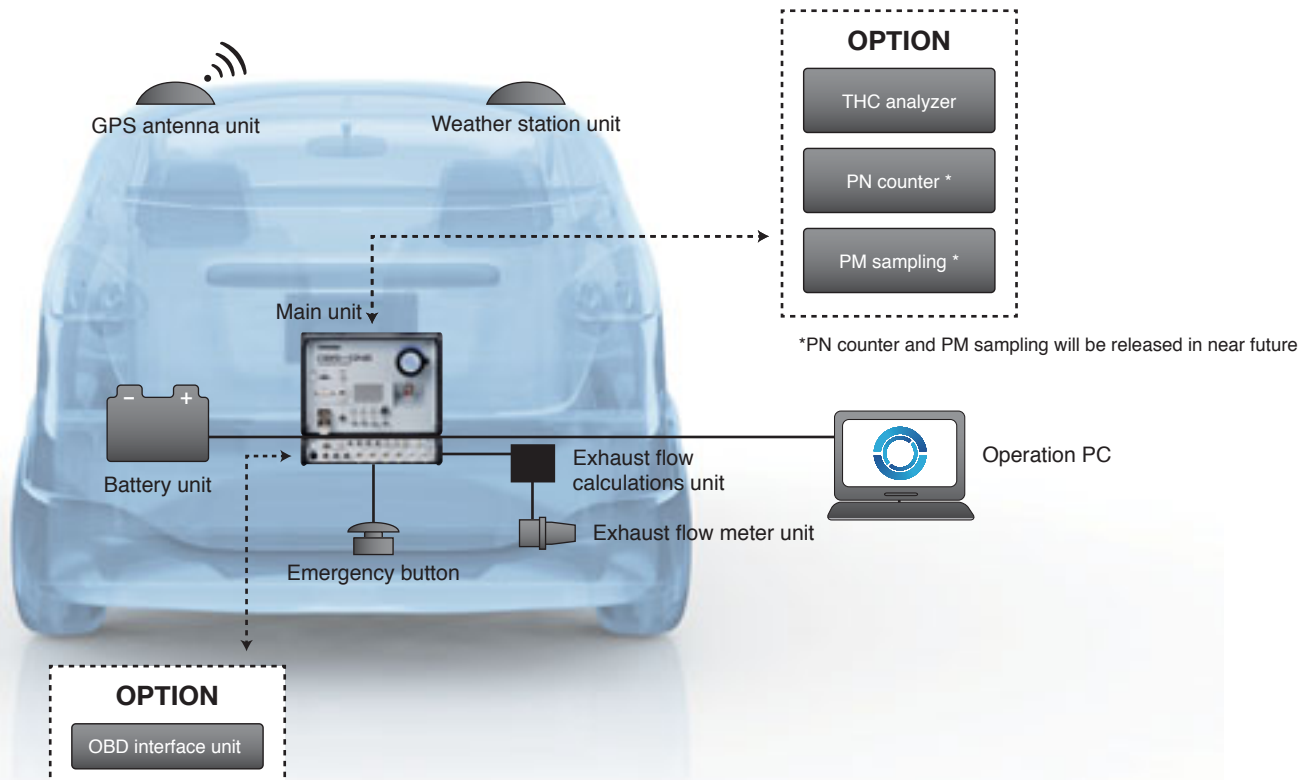


### [ Less power consumption ]



LDV: 50%      HDV: 10%  
(By comparison with previous OBS model)

## System Configuration



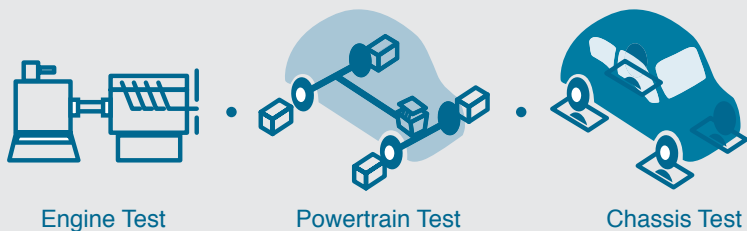
## R&D for Engine, Powertrain and Chassis

Achieving real-world simulation in the test lab

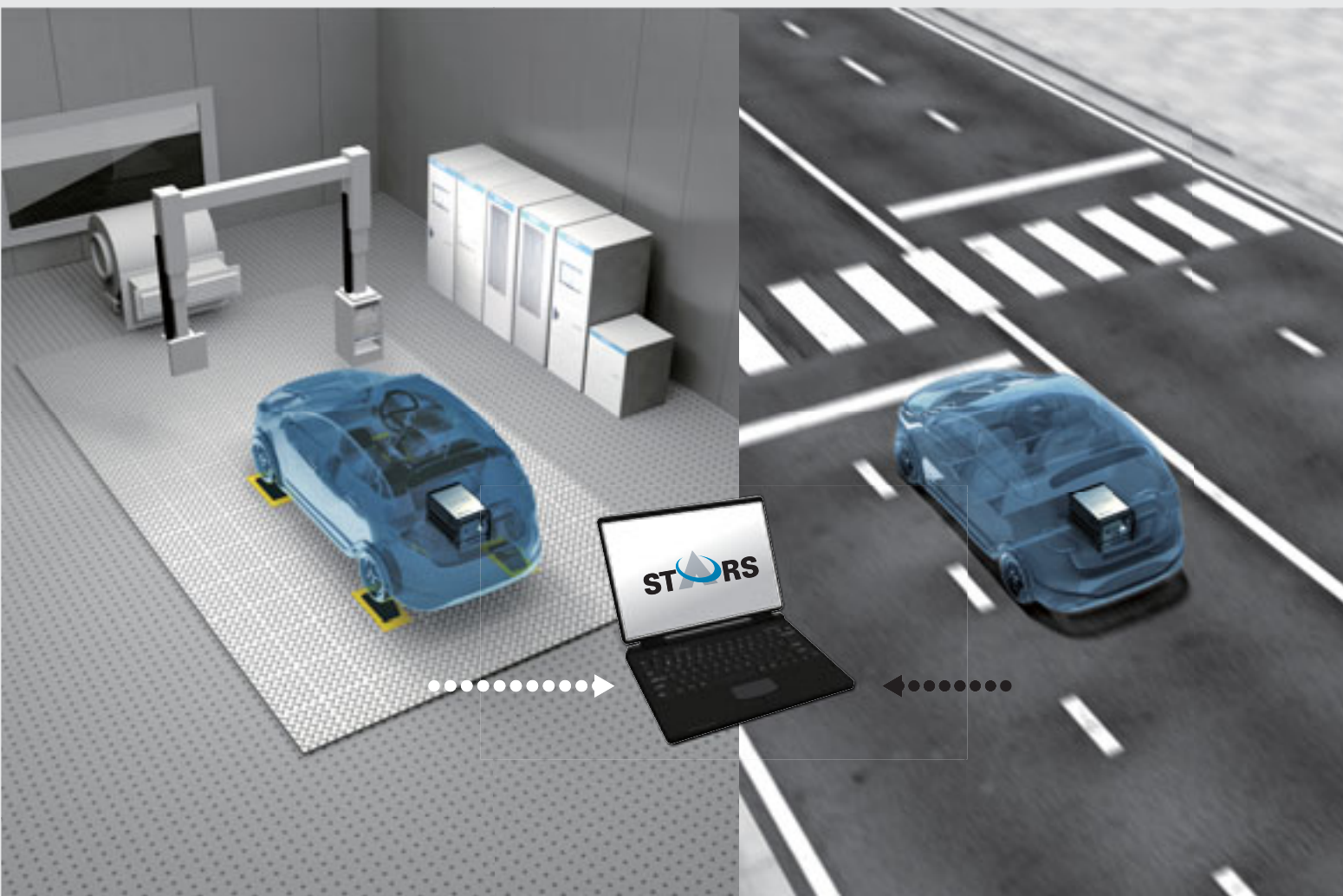
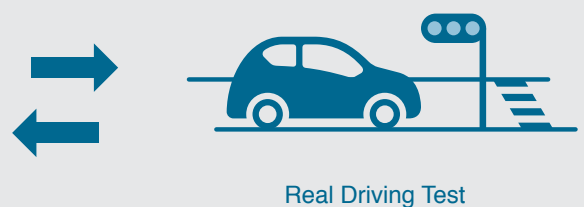
### Test Lab x Real-world

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.

#### Test Lab



#### Real-world



## On-board Emissions Measurement System

# OBS-ONE SERIES

## 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, CO<sub>2</sub>, THC, NO<sub>x</sub>, NO<sub>2</sub>), particulate matter, air-to-fuel ratio, 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 ONE series product data and optimizes test cell operation.

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

# Certification Test for RDE and US EPA CFR 1065 Regulation

Complies with the latest regulation requirements



LDV



EU Euro 6



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 ]

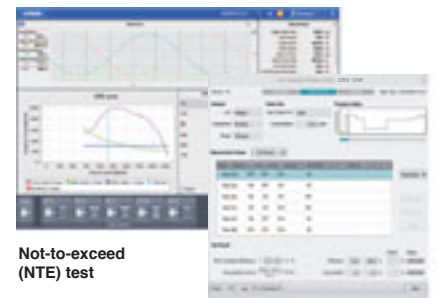
- Checks measuring data during testing to avoid invalid results
- Driver can concentrate on driving without any operation once measurement is started

### ● Data Post Processing

Complicated process of calculation and analysis made simple

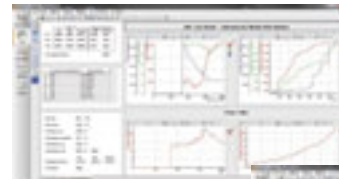
- Suitable calculation and result output for LDV/HDV
- Makes test report for certification
- Shows the camera-recorded drive replay and the GPS map related to measured data
- Complies with ASAM-ODS\* standard

\*ASAM-ODS : Association for Standardization of Automation and Measuring Systems - Open Data Service



Not-to-exceed (NTE) test

QC (Quality check) automatic sequence



Post Processing Moving Average Window Work Method (Result)



Post Processing-1Window (Analysis)



## Integrated Operation Software “HORIBA ONE PLATFORM”

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

The newly 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 new software platform makes system operation easier. System control and a complete system view of other measurement devices are available from one single display. User support for system operation such as maintenance, alarms, and message functions has been further enhanced.

- Future expandability of PN counting and additional pollutant measurement, etc.
- User-friendly screen configuration and layout offer both measurement efficiency and convenience



Device View

## Specification

	LDV Type		HDV Type	
	OBS-ONE-GS01	OBS-ONE-GS02	OBS-ONE-GS11	OBS-ONE-GS12
CO	●	●	●	●
CO <sub>2</sub>	●	●	●	●
NO/NOx *1	●	—	●	—
NO, NOx, NO <sub>2</sub> *2	—	●	—	●
THC	—	—	●	●
Exhaust Flow Rate	●	●	●	●
Power Requirements	DC 22~28 V			
Power Consumption (at stable state) *3	Approx. 0.2 kW		Approx. 0.45 kW	
Dimensions *4	Approx. W 350 x D 470 x H 330 mm		Approx. W 350 x D 470 x H 470 mm	
Weight (Main unit)	Approx. 32 kg		Approx. 45 kg	
Battery *5	Deep-cycle, sealed lead battery of DC 24 V 35 Ah(5 hour rate), Operation time : Approx. 3 hours		Deep-cycle, sealed lead battery of DC 24 V 100 Ah(5 hour rate), Operation time : Approx. 4.5 hours	
Operating Conditions	Temperature: -10 to 40 deg.C,*6 Relative humidity: less than 80%, Altitude: 0 to 2000 m above sea level			

\*1 NO/NOx: Switchable measurement

\*2 NO, NOx: Simultaneous measurement NO<sub>2</sub>: Calculation of NO and NOx

\*3 Length of heated inlet tube LDV type: 2 m, HDV type: 5 m,  
Atmospheric temperature: 20 deg.C

\*4 Excluding handle and projection

\*5 Nickel hydride battery is an optional unit.

\*6 Please contact HORIBA if temperature is below 0 deg.C

\*7 Exhaust flow rate can be taken by OBD interface unit

### <Option>

•OBD interface unit: Supported ISO15765-4/J1939

•External input unit (EIU): Analog voltage, Analog current, Thermocouple, Platinum resistance temperature detector, Frequency

•Power supply unit (PS): Power supplied from AC to system

•Power exchange unit (PE): Can be changed power supply without being powered off

•Heated bubbler unit: Humidifying unit for H<sub>2</sub>O interference check and H<sub>2</sub>O quenching effect check

## Analyzers and Sensors

★ NDIR : Non Dispersive Infrared Detection

CLD : Chemiluminescence Detection

FID : Flame Ionization Detection

	Measurement Principle *	Measurement Range
CO	Heated NDIR	0-0.5 to 0-10 vol%
CO <sub>2</sub>	Heated NDIR	0-5 to 0-20 vol%
NO/NOx	Heated CLD	0-100 to 0-3000 ppm
NO, NOx, NO <sub>2</sub>	Heated-dual CLD	0-100 to 0-3000 ppm
THC	Heated FID	0-100 to 0-10000 ppmC
Sampling Method	Wet measurement	-
Exhaust Flow Rate*7	Pitot flow meter	0-2.0 to 0-65.0 m <sup>3</sup> /min
Standard Signal Measurements	Exhaust temperature, Exhaust pressure, Atmospheric pressure, Atmospheric temperature, Atmospheric humidity, GPS signal, Speed	

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