

## Laboratory precise analysis, anywhere.



Portable Automated Measuring System  
**HORIBA PG-350 P-AMS**

### $\text{NO}_x$ - CO - $\text{CO}_2$ - $\text{O}_2$

According to: DIN EN 15267-4:2017, DIN EN 14181:2015

Approved as Standard Reference Method (SRM) for:

CO (DIN EN 15058)

$\text{O}_2$  (DIN EN 14789)

$\text{NO}_x$  (DIN EN 14792)

# Functions

Advanced measurement needs met with advanced features.

- Cross-Flow Modulation Type Detectors
- Short Warm-up Time
- Timer Function
- Ethernet Capability
- IP42 protection class

## The HORIBA PG-350 P-AMS System Concept

The portable measuring system HORIBA PG-350 P-AMS consists of a portable probe (PSP-4000H), a heated line, a gas sampling system (PSS-5H) and the PG-350EU as the gas analyzer. The system fulfils the requirements of the EN 15267 part 1, 2 and 4 for the periodic measurement of stationary source emissions from stationary sources (QAL1).

## Cross-Flow Modulation - Advanced Efficiency for NDIR analysis

In the PG-350EU analyzer, Cross-Flow Modulation (CFM) is employed for the Non-Dispersive Infrared Absorption (NDIR) of SO<sub>2</sub> and CO detectors. With the NDIR CFM method, sample gas and reference gas flow into a single measurement cell switching from one to the other. This has the advantage that no optical adjustment is required, the zero point is kept stable, it reduces span drift and the sample cell remains clean. The CFM method has already been employed for the Chemiluminescence NO<sub>x</sub> detector in the previous model and delivers the same benefits.

## Reduced response time for SO<sub>2</sub> analyzer \*

The response time of the SO<sub>2</sub> analyzer is faster than on the previous model, PG-250, increasing the overall measurement performance.

## IP42 compliant according to EN 60529

Building on the success of the previous PG-350 generation, the entire system has an IP42 degree of protection, affording protection against dust and light rain, and can therefore be used in demanding and challenging measuring locations.

## Collecting data over LAN network \*\*, RS-232 and Analog

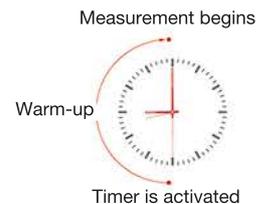
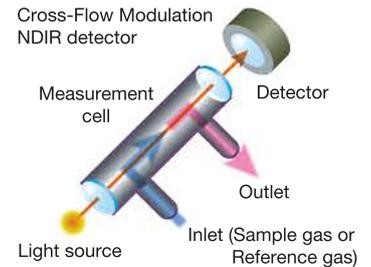
Standard Ethernet interface for connecting to LAN environment, enables real-time data transfer. Once the network connection such as LAN has been set up, data can be downloaded while you are staying in the office or the laboratory, a distance away from where the PG-350EU is operating.

## Warm-up time has been shortened, greatly reducing the instrument's ready-to-measure time

Previous models (e.g. PG-250) required an hour of warm-up time. This has been reduced to 30-minutes for the PG-350EU, greatly reducing the time required for measurement preparation (at 20°C Ambient temperature).

## Timer function enables automatic instrument start and sleep modes

For example, setting the PG-350EU's automatic start time ahead of when measurements are needed, eliminates your need to wait for the instrument to warm up; it will be ready when you are. There is also a sleep mode that reduces power use when the unit is idle.



# Field X Lab

## Rugged Lightweight Design

To provide complete support for measurements in the field, the PG-350EU body has been made lighter than previous models. Side guards prevent unexpected impacts during transport. Designed in this way for easy and safe transport, the PG-350EU provides full support for your measurements in the field.



Lighter than existing models to make transport easy.

\* SO<sub>2</sub> is not part of the measuring system certified according to EN 15267-4 (as of date of printing)

\*\* Requires separate software

# Easy Operation

Operation is simple and intuitive, making it easy to perform measurements in the laboratory or the field.

- SD™ memory card slot
- Screen capture function
- On screen guidance
- Color LCD touch screen
- Internal Data Memory
- Color trend graph

Simple, intuitive operation makes on-site measurements easy. The PG-350EU has a highly visible and easy to operate LCD color touch screen. Data is readily saved on a SD™ memory card for easy transfer to a PC. The unit is equipped with a screen capture function as a standard feature, enabling necessary data to be saved in the spot. There is also an intuitive on screen guidance function, when the operator's manual is not at hand.

## Equipped with an SD™ memory card slot to enable data to be saved immediately

SD™ memory card slot accessed from the front of the instrument enables necessary data to be saved on the spot in the universal CSV format. The SD™ card slot is located on the front of the unit for easy access.



## On screen guidance function allows you to confirm review operating procedures instantly

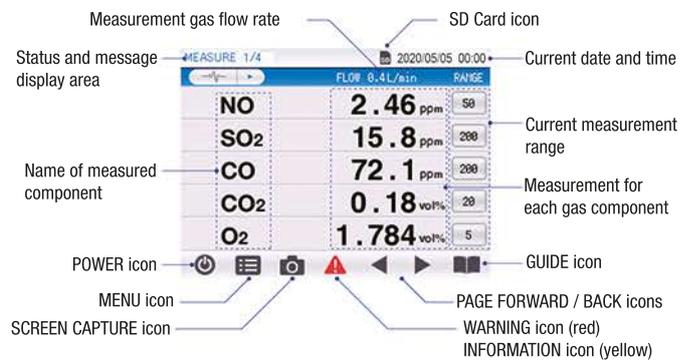
The simple guidance function provides assistance when you have forgotten how to perform an operation. You can review regular operational procedures or important points right on the screen.

## LCD touch screen improves ease of operation

All operations, including calibration, measurement and saving on-screen data, can be performed on the touch screen. The high visibility color display makes it easy to check the status.

## Easy real time analysis using the color trend graph

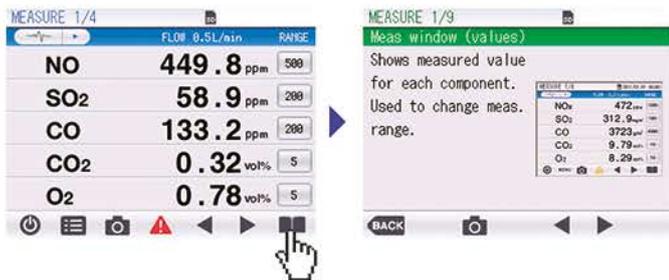
A convenient color trend graph function enables gas component trends as a function of time to be confirmed at a glance.



## Screen capture function enables data to be saved immediately as a bitmap image onto the SD memory card.

No paper or pen required - simply touch the SCREEN CAPTURE icon and a screen shot is stored in memory.

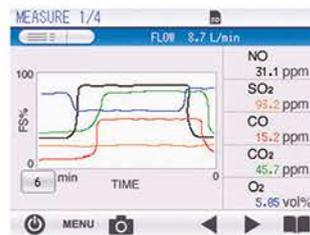
### Sample display screens



When you press the GUIDE button...

... and then the screen shows information that you can handle at the current operation.

### Color trend graph



### Calibration screen

LINE	CAL	FLOW 0.5 L/min	ZERO	SPAN
NO	26.1 ppm	ZERO	32	1.0000
SO <sub>2</sub>	92.0 ppm	----	1	1.0000
CO	19.3 ppm	ZERO	2	1.0000
CO <sub>2</sub>	2.38 vol%	ZERO	6	1.0000
O <sub>2</sub>	4.20 vol%	ZERO	16	1.0000

Note: Calibration requires separately purchased calibration gas and pressure regulator.



Front panel LED's clearly display unit status/recording data



Easy to operate unit yields precision analysis results



Color LCD touch screen with high visibility display.

# Specifications

<b>Measured Components</b>	NO <sub>x</sub> / SO <sub>2</sub> * / CO / CO <sub>2</sub> / O <sub>2</sub>		
<b>Measuring Principles</b>	NO <sub>x</sub>	Cross-Flow Chemiluminescence analyzer (CLA)	
	SO <sub>2</sub> *, CO	Cross-Flow Non-Dispersive Infrared Absorption analyzer (NDIR)	
	CO <sub>2</sub>	Non-Dispersive Infrared Absorption analyzer (NDIR)	
	O <sub>2</sub>	Paramagnetic analyzer (PMA)	
<b>Measuring Ranges</b>		<b>Standard</b>	<b>High</b>
	NO <sub>x</sub>	0 to 25/50/100/250/500/1000/2500 ppm	
	SO <sub>2</sub> *	0 to 50/100/200/500 ppm	0 to 200/500/1000/3000 ppm
	CO	0 to 60/100/200/500/1000 ppm	0 to 200/500/1000/2000/5000 ppm
	CO <sub>2</sub>	0 to 10/20/30 Vol.%	
	O <sub>2</sub>	0 to 5/10/25 Vol.%	
<b>Repeatability</b>	±0.5% of the full-scale		
	NO <sub>x</sub>	above the 100 ppm range: ±1.0% of the full-scale (except as specified above)	
	CO	above the 1000 ppm range: ±1.0% of the full-scale (except as specified above)	
<b>Linearity</b>	±2.0% of the full-scale		
<b>Drift</b>	NO <sub>x</sub> , CO, CO <sub>2</sub> & O <sub>2</sub>	±1.0% per day of the full-scale	
	SO <sub>2</sub> *	±2.0% per day of the full-scale	
<b>Response Time (Td+T90)</b>	NO <sub>x</sub> , CO, CO <sub>2</sub> & O <sub>2</sub>	45 seconds or less (if response time is set at 10 seconds from the device inlet)	
	SO <sub>2</sub> *	180 seconds or less (if response time is set at 10 seconds from the device inlet)	
	Response time can be switched 10 seconds and 30 seconds		
<b>Sampling Flow Rate</b>	Analyzer	Approximately 0.5 L/min	
<b>Output</b>	Analyzer	4 mA to 20 mA DC (non-insulated), LAN or 0V to 1V DC (non-insulated) (optional), LAN	
	Sample conditioner	Approximately 3 minutes (with heated line approx. 1 h)	
<b>Warm-up Time</b>	Analyzer	±2.0% per 2 hours of the full-scale for the warm-up in 30 minutes	
<b>Working Temperature Range</b>	Sample conditioner	5°C to 40 °C	
	Analyzer	5°C to 40°C	
<b>Relative Humidity Range</b>	Analyzer	Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% at 40°C	
<b>Power Supply</b>	Sample conditioner	115 or 230 V AC ±10 %, 50/60 Hz	
	Analyzer	100V to 240V AC ±10% (maximum 250V AC), 50 Hz/60 Hz for common use	
<b>Power Consumption</b>	Sample conditioner	Max. 240 VA; with option temperature controller and heated sample line 230 V: max. 1620 VA, 115 V: max. 920 VA	
	Analyzer	160VA in normal operation, maximum 220VA (for the 5-component analyzer)	
<b>Protection Class</b>	Sample conditioner	IP42 EN 60529	
	Analyzer		
<b>External Dimensions</b>	Sample conditioner	453 (W) x 282 (D) mm x 654 (H) with casters and handle	
	Analyzer	300 (W) mm x 590 (D) mm x 260 (H) mm (with side guards, excluding projections)	
<b>Weight</b>	Sample conditioner	Approximately 18.5 kg	
	Analyzer	Approximately 17 kg	
<b>Gas Sampling Conditions</b>	Sample conditioner	Temperature (inlet)	Max. 80°C
		Moisture (inlet)	Max. 80°C
		Gas flow rate heat exchanger	Max. 150 NI/h
		Pressure	0.7 bar up to 1.4 bar abs.
	Analyzer	Other Requirements	No corrosive or explosive gas components in the sample gas
		Temperature	Ambient temperature (<40°C)
		Moisture	Below ambient temperature saturation
		Dust	0.1 g/Nm <sup>3</sup> or less
		Pressure	±0.98 kPa
		Other Requirements	No corrosive or explosive gas components in the sample gas

\* SO<sub>2</sub> is not part of the measuring system certified according to EN 15267-4 (as of date of printing)

\*\* Maximum values in technical data must be rated in consideration of total cooling capacity at 25 °C ambient temperature and 5 °C outlet dew point.

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C, 1013 mbar.

The Standard Reference Method (SRM) is the European Standard for the periodic monitoring and for the calibration or control of Automatic Measuring Systems (AMS), permanently installed on a stack, for regulatory or other purposes. The recognized technology for the SRM method for O<sub>2</sub> is paramagnetic, for NO<sub>x</sub> it is the chemiluminescence and for CO it is Non-Dispersive Infrared absorption (NDIR).

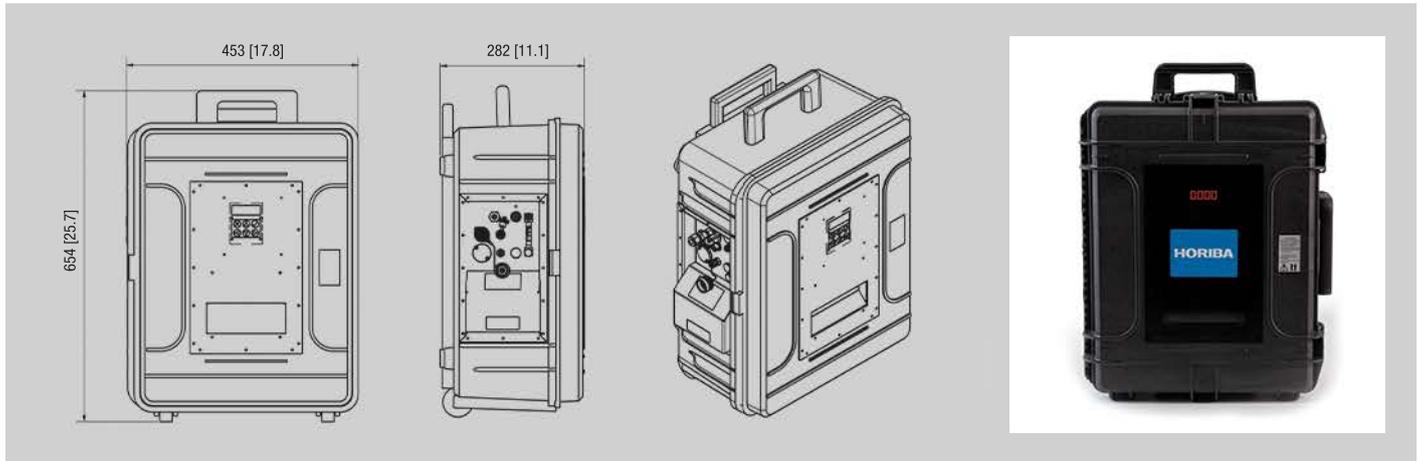
## Standard Accessories

Part Name	Specifications	Quantity
Sampling probe	Portable	1
Heated line	5m max. length	1
Gas sampling system		1
Filter element	For reference line	24
Signal cable	For analog output (2m with connector)	1
Power cord	2.5m	1
Tube	ø6/ø4 PTFE tube 0.12m (for mist catcher short)	1
Tube	ø6/ø4 PTFE tube 5m (for sample)	1
Tube	ø9/ø5 Imron tube 5m (for exhaust)	1
Tube	ø9/ø5 Imron tube 1m (for drain discharge)	1
Joint	ø6/ø4 straight (for sample tube)	1
Cover	Dust cover (for storage)	1
SD memory card	512 MB	1

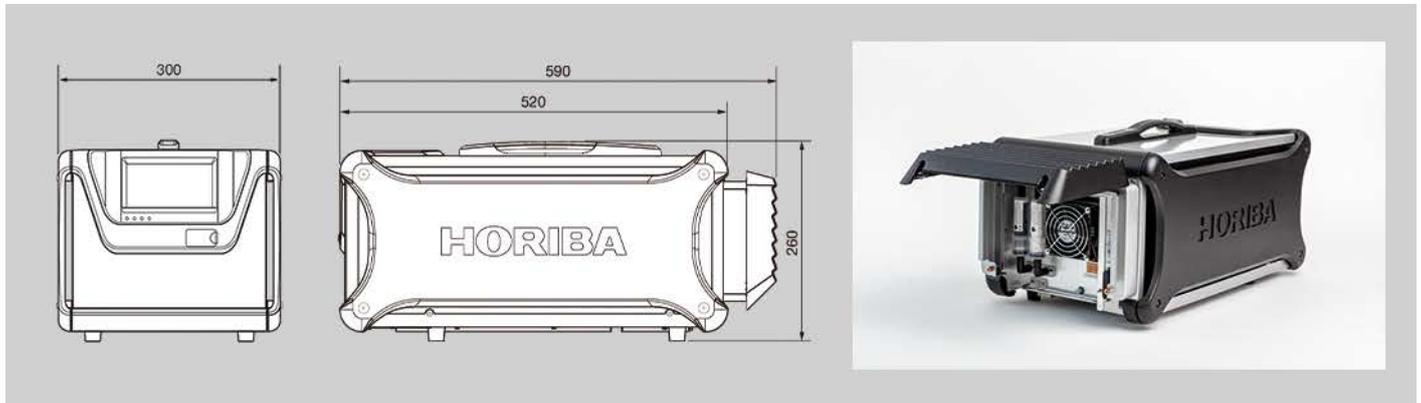


# Dimensions

## External Dimensions (mm) System Components Gas Sampling System: PSS-5H



## Gas Analyzer: PG-350EU



## Optional Accessories Transport Case – PG-350EU



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# Measurement So Easy It's Almost Instinctive

Portable and lightweight with laboratory-level precision.

## The New Possibilities of Gas Analysis Begin with "Precision Mobility"

For situations when you can only take measurements in the field, but you want the same precision that you get in the laboratory: HORIBA presents the Portable Automated Measuring System - PG-350 P-AMS.

The HORIBA PG-350 P-AMS offers the same accuracy and reliability of laboratory measurements in a portable and durable unit, that is light and has a faster response time. With a shortened warm up time, a high visibility touch screen, high accuracy in measuring crucial components in the field and the durability to facilitate mobile measurement, the HORIBA PG-350 P-AMS is the analyzer system of the future.

Portable Automated Measuring System

**HORIBA PG-350 P-AMS**

$\text{NO}_x - \text{CO} - \text{CO}_2 - \text{O}_2$

