



# RASI700 ENG Emissions & Gas Analyser for Gas & Diesel Engines

The most trusted analyser for Service and Commissioning Engineers working on Nat Gas, Landfill, Biogas and Diesel Industrial Engines



## RASI 700 Engine Test Kits

The RASI 700 is currently one of the most used emissions gas analyser (NOx meter) in the UK for servicing, commissioning and testing any type of industrial engines such as, natural gas, landfill, biogas, propane and Diesel engines.

The RASI 700 is light, extremely portable and easy to use with long lasting batteries. Batteries are charged through MINI USB port. It comes with pre configured specific measurement menus which help the operator to make the right selection depending from the application. It avoid the need to keep changing the configuration of the display depending from the measurement task that an engineer need to carry out.

The Basic Kit is equipped with O2, CO(H2)O-20000 ppm, NO and NO2 measurement cells. The more advanced kits can be equipped with NDIR CH4%, CO2% and H2S (EC) to measure the quality of the fuel Gas. These KITS are particularly suitable for commissioning engineers working on BIOGAS or LANDFILL Gas Engines who require to know the CH4% content during the commissioning phase.

All the RASI700's measures exhaust gas temperature, back pressure and provide Lambda ( Air Ratio) readings.

Each RASI700 is equipped as standard with Bluetooth communication to work together with our MRU4U mobile app or WIN4U Windows software.

## Key Features

- Separate NO & NO2 sensors for TRUE NOx measurement
- Additional CH4%, CO2% and H2S measurement sensors for Fuel Gas
- NOx and CO reading in mg/m3 and/or ppm with O2 reference user selectable
- CO cell up to 20000 ppm with enhanced NO filter
- Measure & Display Lambda values
- Measure "back Pressure" simultaneously with emissions
- Data logging and data export on CSV format to SD card
- Bluetooth for communication with MRU4U mobile app
- Selected Engine Probe with heat shield and 2.7 mm special Viton hose provide protection against NO2 absorption

## True NOx measuring

The continuous & high fluctuation of the NO2 portion in the engine exhaust requires to make separate measurement of both NO and NO2 to provide accurate "True" NOx values of the engine.

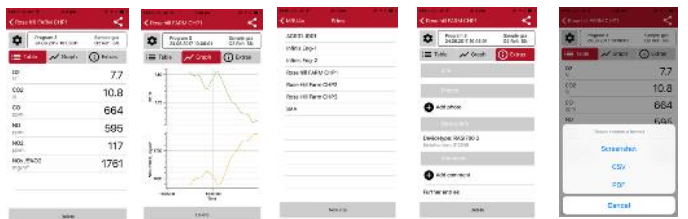
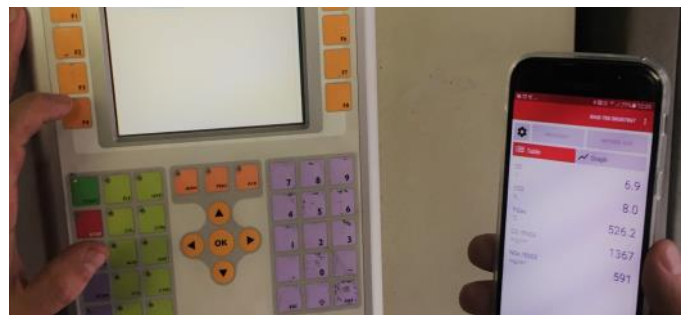
Equally important is ensure that the Total NOx is reported in the correct way.

The Environmental Agency requires the operator to report the total NOx in mg/m3, in term of NO2 and corrected for O2% reference. Typical O2% correction re reported below:

	Gas Engines	Diesel Engines	Industrial Boilers	Gas Turbine
O2 ref:	5 %	15 %	3 %	15 %

## Free MRU4U mobile app ( IOS/ANDROID) for remote control, visualization & reporting.

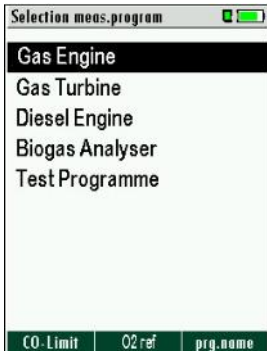
Work faster and safer with our new MRU4U mobile app with specific engine reporting function. Capture and share data with your colleague in a more efficient way. Turn your smart device into a gas analyser. Leave the analyser in the exhaust and be in front of the screen "Noxing" and "mapping" the engine. Data are saved under a Job Number and additional information such as Delivery Pressure, Engine Load, CH4% content and Engine Condition can be entered to be saved together with the exhaust measurements.





## Measurements made easy

The RASI700 smart menu guides step by step through the whole measurement process to make it easy and safe for the operator. The large 3.5 " TFT graphic colour display provides information relevant to the application and guides the user through the measurements from start to finish. No instrument-specific knowledge is therefore required. Instrument settings, such as correct O2% reference and display values are activated by selecting the application. User can re-name programmes and change setting as required.



**Application selection**

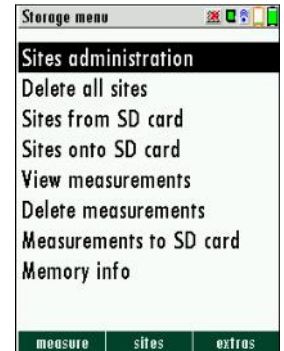
Engine exhaust	
O2 [ref]	<b>6.8</b>
CO [mg/ref5%O2]	<b>1200</b>
NOx [mg/ref5%O2]	<b>525</b>
T-gas [°C]	<b>650.7</b>
Air ratio	<b>1.43</b>
CO2 [%]	<b>11.7</b>

**Exhaust measurement**

Gas analyser	
O2 [%]	<b>0.4</b>
H2S [ppm]	<b>123</b>
CO2 [%]	<b>34.37</b>
CH4 [%]	<b>47.02</b>

**Biogas measurement**

(RASI700-KIT-ENG10)



**Data Capture & site administration**

## CH4% and CO2% NDIR measurements

The Advanced KIT is equipped with a non dispersive Infrared Sensor for direct measurement of CH4 % and CO2% in the fuel gas. This configuration makes the RASI700 unique, being the only combined emissions and gas analyser in the market. It is the perfect tool for commissioning engineers setting up Gas Engines in Landfill and Biogas applications.

The CH4/CO2% NDIR sensor is fully temperature and pressure compensated to achieve optimal accuracy.

## Higher CO cell 0-20000 ppm

All the new RASI 700 are now equipped as standard with an higher range CO (H2 comp) measurement cell which is able to with-stand CO concentration up to 20000 ppm with-out any dilution. The new cell also have an enhanced NO filter.

## Best in class accuracy & stability

Thanks to special selected measurement cells , an extensive cross-reference matrix and full temperature compensation, the RASI700 offers best in class accuracy, stability and repeatability over the years.

## Designed Engine Gas Sampling probe

Each RASI 700 is supplied with a sampling probe which is especially designed for optimal use on engines exhaust measurements. The probe is supplied with a replaceable tip , 365 mm made in stainless Steel with an operating temperature up to 850 °C and 2.7 m Viton sampling line to prevent NO2 abortion. Thanks to the COAX design, integrated type K thermocouple and triple hose, the RASI 700 provides temperature and back





## Ordering Information

### RASI 700 Engine Exhaust Emissions Analyser

	Part Number
<b>Include:</b>	RASI700-KIT-ENG
RASI 700 main Unit with integrated water trap and filter, temperature and pressure readings and IRDA communication for optional printer	
O2 sensor 0-25 %	
CO sensor 0-20000 ppm	
NO sensor 0-5000 ppm	
NO2 sensor 0-1000 ppm	
Bluetooth communication	
MRU4U mobile app	
Gas Sampling Probe for Industrial Engines	
USB lead/wall charge	
Double wall robust ABS transport case	

### Options/Accessories

Description	Part Number
IRDA Fast Infrared Printer, USB charging	RASI-ACC-22
S02 sensor ( suggested for emissions on Diesel Engines)	RASI700-SENS-09
Water trap Star Filter	RASI-CON-01
Thermal Paper (PK 10)	RASI-CON-02
Flow Option	RASI-OPT-13
Straight Pitot tube	RASI-PTUB-250-12



RASI 700 shown in its standard double wall case with document lid and hard customised foam.

### RASI 700 Combined Emissions and Gas Analyser

	Part Number
<b>Include:</b>	RASI700-KIT-ENG10
RASI 700 main Unit with integrated water trap and filter, temperature and pressure readings and IRDA communication for optional printer	
O2 sensor 0-25 %	
CO sensor 0-20000 ppm	
NO sensor 0-5000 ppm	
NO2 sensor 0-1000 ppm	
H2S sensor 0-2500 ppm	
CH4 % NDIR 0-100 %	
CO2 % NDIR 0-100 %	
Bluetooth communication	
MRU4U mobile app	
Gas Sampling Probe for Industrial Engines	
Gas sampling tubing	
USB lead/wall charge	
Double wall robust ABS transport case	

### Flow Measurement Option

Extend the functionality of your gas analyser with the flow option. Range 1 to 100 m/S.

#### New Straight Pitot Tube

3 ways straight pitot tube allow for simultaneously sample of gas quality, flow velocity including mass flow and adapter to fit the most common 1/2" ball valve to avoid gas escape during positioning.

**Dimension: 12 mm x 250 mm**





## Technical Specifications

Measurements	Range	Accuracy	Resolution	Sensor Type
Oxygen ( O <sub>2</sub> )	0 to 25 %	± 0,2 % abs Vol	0.01 % Vo%	Electrochemical
Carbon Monoxide ( CO-H <sub>2</sub> )	0 to 20000 ppm	± 10 ppm or 5% reading ( 0-4000 ppm ) 10% reading (4000 to 20000 ppm)	1 ppm	Electrochemical
Nitric Oxide ( NO)	0 to 5000 ppm	± 5 ppm or 5% reading (0-1000 ppm) 10% reading (1000 to 5000 ppm)	1 ppm	Electrochemical
Nitrogen Dioxide ( NO <sub>2</sub> )	0 to 1000 ppm	± 5 ppm or 5% reading (0-200 ppm) 10% reading (200 to 1000 ppm)	1 ppm	Electrochemical
Hydrogen Sulphide ( H <sub>2</sub> S)	0 to 5000 ppm	± 5 ppm or 5% reading (0-500 ppm) 10% reading up to 5.000 ppm**	1 ppm	Electrochemical
CH <sub>4</sub> % Methane	0 to 100 %	± 0.3 % Vol (0-10 % range) ± 0.5 % Vol (10-65 % range) ± 1.5 % Vol (65 to 100% range)	0.01 % Vol	NDIR
CO <sub>2</sub> % Carbon Dioxide	0 to 100 %	± 0.3 % Vol (0-10 % range) ± 0.5 % Vol (10-65 % range) ± 1.5 % Vol (65 to 100% range)	0.01% vol	NDIR
Exhaust Gas Temperature	0 to 1200 °C	± 2 °C	0.1 °C	Piezoresistive
Pressure ( gauge, diff, back )	-300 to 300 mbar	± 0.02 mbar	0.01 mbar	Piezoresistive
Draught	-40 to 40 mbar	± 0.02 mbar	0.01 mbar	Piezoresistive
Barometric Pressure	850 to 1150 mbar	± 10 mbar	0.1 mbar	Piezoresistive
Flow Velocity ( option)	1 to 100 m/sec	± 0.5 m/sec	0.1 m/sec	Pitot tube
<b>Combustion and Environmental calculations</b>				
O <sub>2</sub> Normalization	NO <sub>x</sub> and CO automatically displayed in mg/m <sup>3</sup> and or ppm with user define % O <sub>2</sub> reference			
True NO <sub>x</sub>	(NO+NO <sub>2</sub> ) corrected and reported in term of NO <sub>2</sub> as per EA guidelines			
Lambda ( Air Ratio)	1 to 9.99			
<b>Digital</b>				
Digital Communication	mini-USB, SD, Infrared, Bluetooth™ (data transfer to smartphone, tablet or PC)			
Data logging	Manual or automatic up to 16000– Data export to SD card in CSV format			
Site management	Up to 4000 sites, with ID number and address			
<b>General</b>				
Display	3.5" TFT graphic colour display			
Power	Internal Li-Ion Rechargeable batteries (15 hours continuous operation)			
AC adapter	wall-plug grid power supply, 100 - 240 Vac / 50 ... 60 Hz			
Charging	Trough MINI USB port ( USB cable and wall plug supplied)			
IP Protection	IP 30			
Dimensions	110 x 225 x 52 mm			
Weight	approx. 750 g			
Operating Temperature	5 to 45 °C , 95 % HR non condensing			
Storage Temperature	0-50 °C			
Approvals	CE, TUV EN 50379-2 ( O <sub>2</sub> , CO, NO)			
Probe	Modular gas sampling probe for Industrial Engine, 365 mm immersion depth, incl. cone, heat shield, thermocouple NiCr-Ni (TI) Tmax 850 °C and NO <sub>2</sub> /SO <sub>2</sub> special triple hose 2.7 m for simultaneous gas sampling, pressure and temperature measurement			



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For continue product improvement, specifications and product design are subjected to change with-out any notice

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