

RASI 800 MCERTS

Portable Emissions and Combustion Analyser for O₂, CO, NO, NO₂ (NO_x), SO₂ and CO₂% and HC% MCERTS certified.

Features

- Standard measurement for O₂, CO, NO, NO₂ (NO_x)
- NO_x and CO reading in mg/m³ or ppm with O₂ reference user selectable
- Optional SO₂ and CO₂% (NDIR) and HC(NDIR)
- Integrated gas cooler with peristaltic pump for automatic condensate removal and condensate monitor and alarms
- Wireless RCU control and display unit for remote control of all the functions of the analyser and display measurements
- Automatic data logging and data export on CSV format to SD card– Sleep mode for long term measurements
- Programmable Auto zero function(fresh air purge)
- CO purge pump for preventing over saturation
- Special Selected Probe with heated glass wool filter, 2.7 m Viton Line.



Key Benefits

- **MCERTS certified**
- **Suitable for MCPD directive**
- Promote health and safety and greatly reduce commissioning time thanks to the RCU wireless remote control unit
- Extended cells life time thanks to the built-in gas cooler and moisture removal pump which translate in very low cost of ownership and minimum down time.
- Suitable for long term measurement cycles
- Task Menu with dedicate engine/turbine/Boilers/ Furnaces pre-setting save time and reduce risk of reporting non-correct readings

RASI 800 MCERTS test Kit

Measure O₂, CO, NO, NO₂ and SO₂ and CO₂% (NDIR) the RASI 800 MCERTS Test Kit is supplied as standard with temperature, pressure and draught measurements along with O₂, CO, NO and NO₂

The RASI 800 MCERTS is suitable for use on gas, Oil, diesel combustions processes, solid fuels and biomass boilers and of course biogas & Landfill Engines and gas turbine.

Some Emissions Parameters

- True NO_x (NO + NO₂) measurement
- Display NO_x in ppm or mg/m³ or both at the same time
- Display NO_x in mg/m³ with O₂ reference % in term of NO₂ as prescribed by the Environmental Agency.
- Display CO in mg/m³ or PPM with O₂ reference %
- Display Lamba value (Air Ratio)
- Display SO₂ in ppm or mg/m³ with O₂ reference (when SO₂ cell is installed)
- Display O₂, Exhaust temperature and all other parameters.
- Direct CO₂% measurement using NDIR cell

MCERTS Approval

The RASI 800 is now MCERTS approved to the following standard:

MCERTS Performance Standards for Portable Emission Monitoring System, Version 3.1 dated February 2010. Certificate MC1302233/02.

NO_x measuring and reporting

True NO_x in engine measurement application using electrochemical cells can only be achieved by separately measuring NO and NO₂. The high and fluctuating NO₂ component in the total portion of the NO_x impose that both measurement cells are installed.

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

The Environmental Agency requires the operator to report the total NO_x in mg/m³ at a specific % oxygen level, expressed in term of NO₂.

Semi-continuous monitoring

Wake and sleep mode takes gas measurements at user defined interval. User setting includes the total duration of the **test up to 24 hours** and the interval (time between the “wake” and sleep “mode”.

During the “wake mode” the analyser will measure and log values. During the “sleep mode” the unit is automatically switched to “AIR”



Base Unit



RCU wireless remote control unit



Sampling Probe

RASI 800 MCERTS Base unit

Features

- Peltier Gas Cooler and condensate pump
- Fresh Air In let (Auto Zero)
- CO purge pump sensors protection
- Host all the measurement sensors, filters, and pump

Peltier Cooler and condensate pump

A proper sample conditioner is an essential and crucial feature of any electrochemical cells based combustion or emission analysers. Our Analyser incorporate sampling conditioner features that are second to no one and that typically are only available on fixed or process gas analyser. These feature includes a Thermoelectric "Peltier" GAs Cooler with automatic condensate removal pump and condensate monitor and alarms.

Thermoelectric Peltier Cooler:

The sample gas enters the temperature controlled cooler, (maintained a 5 C), where the moisture in the gas quickly condenses and it is trapped in the water trap catch.

Peristaltic Pump:

The pump automatically removes condensate from the water trap, eliminating any possible contact with the sample gas.

Condensate alarm:

a sophisticated condensate supervision prompt ad alarm the user (on the RCU) in case of high humidity level in the gas sample.

Ensuring a cold and dry sample gas to the gas sensors is a vital conditions to ensure long term repeatability and accuracy of the analyser .Because the gas sample is properly conditioned before being measured, the typical life of the electrochemical cells in the RASI 800 analyser is much longer than any other analyser

Fresh Air inlet/Auto zero

A programmable solenoid valve is used to provide fresh air to the sensors manifold. Automatic zeroing of the sensor eliminate sensor drift and saturation during long term measurement cycles and ensure longer life to the electrochemical cells. It also allow for the flue gas probe to remain in the stack during the Auto zero function. The function can be automatically operated by setting an interval purging time, or manually operated but simply press the auto zero function key from the RCU unit.

CO Purge Pump sensor protection

A CO Purge pump is installed as standard to protect the CO sensor from over saturation. It is automatically triggered by a CO limit which is user programmable. This pump automatically purge the sensor with fresh air to avoid saturation. It allows for the unit to be used in both lean or reach combustions.



RASI 800 MCERTS BASE UNIT

RCU Wireless remote control unit

Features

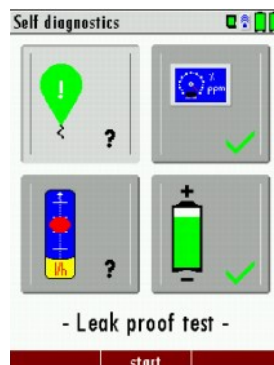
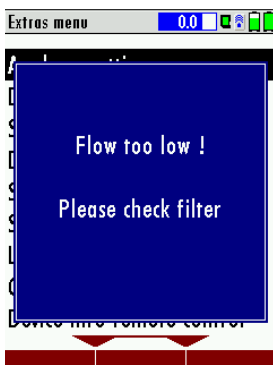
- Remotely control all the functions of the analysers
- Display all the measurement value on its large 3.5" TFT colour display
- Blue tooth communications with the base unit
- Automatic data logging on SD card
- Task oriented menu with pre-set application menu.

The wireless remote control unit is probably one of the most existing feature of the RASI 800 Analysers. It remotely control all the functions of the analysers and display the measurements value on its large colour display. It promotes health and safety on site and reduce the engine commissioning time.



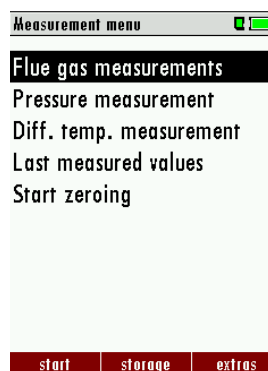
Instruments Diagnostic and display alarm

The RASI 800 has numerous instruments diagnostic pages that ensure a correct use of the analyser at all times. Alarms in such cases as "Low Flow" and "condensate too high" prompt the user of malfunctioning or anomalies. User can also get into the self diagnosis page and check the instruments status any time.

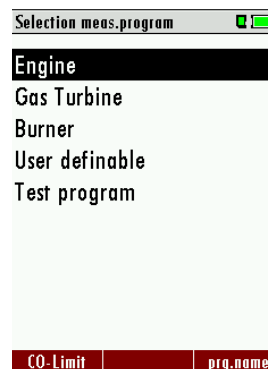


RCU task oriented menu

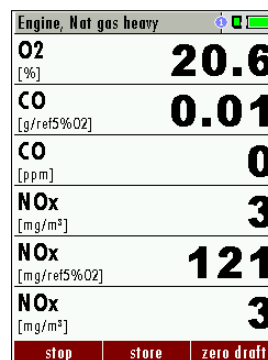
Correct O2% referencing, display units and practical order are pre-settable and stored under specific application. Once on field, simply turn on the analyser, select the application and start to measure with confidence that you are reading and reporting the correct parameters.



1. Select your task
Once the analyser is switched on, you will be prompted with the task selection.



2. Select your application
Pre set and configure your analyser for your technicians to save time once they are on site. This also eliminates human mistake in selecting the wrong parameters.



3. Start measuring
Measure with confidence that all the important parameters such as the correct O2% referencing (5%) is selected and you are reading NOx and CO with the correct units such as mg/m³ or ppm

Sampling Probe

Features

- Heated Head and heated glass wool filter ensure clean and dry gas sample going through the analyser and help preventing moisture build-up
- 2.7 m Viton line ensure a smooth gas flow and prevent absorption of NO₂ and SO₂ gases
- Replaceable tip for optimal use on many applications
- Max temperature 850 C (available up to 1200 C)



Heat Head and replaceable glass wool filter

The use of a correct sampling probe for each specific application is vital to the accuracy of the measurements and to the long life of the analyser.

A correct probe not only ensure better accuracy, but also play an important role for protecting the analyser from contamination with dirty exhaust flue and condensation.

RASI 800 MCERTS KIT Standard delivery

Rasi 800 MCERTS Kit is supplied as standard with all the sensors, probe head and case. Standard delivery include:

- Rasi 800 fitted with O₂ (long Life), CO, NO, NO₂ cells
- Integral peltier gas cooler and peristaltic pump for automatic water discharge
- Fresh Air (auto zero valve) inlet and CO protection purge pump
- RCU wireless remote control unit
- Automatic data logging with “ sleep mode” and storage on SD card
- Sampling probe with 2.7 m Viton Line (Probe tube to be selected)
- Integrated fast printer
- Sturdy “all in house” protective transport case for analyser and probe.
- Li-Ion Rechargeable battery and charger
- USB cable and Software
- Calibration certificate with data

Options

- SO₂ measurement cell
- CO₂/HC % NDIR infrared measurement cell



RASI 800 MCERTS



RASI 800 MCERTS specification (base unit)

| Gases Specifications | | | | |
|-----------------------------|------------|----------------|--|------------|
| Ranges | Parameter | Range | Accuracy | Resolution |
| Standard | O2 | 0 to 25 % | ± 0.2 % Vol | 0.01 % Vol |
| Standard | CO | 0 to 20000 ppm | ± 10 ppm or ± 5 % of rdg up to 4000 ppm ± 10% of reading from 1000 to 20000 ppm | 1 ppm |
| Standard | NO | 0 to 5000 ppm | ± 5 ppm or ± 5 % rdg up to 1000 ppm ± 10% of reading 1000 to 5000 ppm | 1 ppm |
| Standard | NO2 | 0 to 1000 ppm | ± 5 ppm or ± 5 % of rdg up to 200 ppm ± 10% of reading from 200 to 1000 ppm | 1 ppm |
| Option | SO2 | 0 to 5000 ppm | ± 10 ppm or ± 5 % rdg to 2000 ppm ± 10% of rdg from 2000 to 5000 ppm | 1 ppm |
| Option | H2S | 0 to 5000 ppm | ± 5 ppm or ± 5 % rdg up to 50 ppm ± 10% of reading above | 1 ppm |
| Option 1 Gas NDIR | CO2% | 0 to 40% | ±0,03 % or ±3 % reading | 0.01% |
| Option 3 Gas NDIR | CO2% | 0 to 40% | ±0,03 % or ±3 % reading | 0.01% |
| | HC(as CH4) | 0 to 4 % | ±0,03 % or ±3 % reading | 0.01% |
| | CO% | 0-10 % | ±0,03 % or ±3 % reading | 0.01% |

| Displayed Emission Value | |
|---------------------------------|---|
| | NOx/CO/SO2 in mg/m3 and ppm with O2% reference (user selectable) |

| Other parameters | |
|-------------------------|--|
| Lamba (Air ratio) | 1.00 to 9,99 |
| Pressure | -300 to 300 mbar (draught and differential pressure) |
| Temperature | -50 to 1200 C |

| Sample Gas Conditioning | |
|--------------------------------|---|
| | Gas Sampling pump |
| | Integrated high performance peltier gas cooler with continuous condensate draining pump |
| | Solenoid valve for auto-zero in stack (fresh air inlet) with user definable intervals |
| | Inline filter |

| General Specifications | |
|-------------------------------|---|
| Operating Temperature | 5 to 45 C |
| Storage Temperature | -20 to 50 C |
| Humidity | 95 % Max non-condensing |
| Protection | IP 20 |
| Power Supply/Main | Li-Ion rechargeable battery /100-240 VAC switching |
| Main | 100-240 VAC switching |
| Weight and dimension | 6 Kg, 470 x 314x 235 including case, probe and remote wireless unit |
| MCERTS approval for | O2, CO, NO, NO2, SO2 and CO2% |



RASI 800 MCERTS specification (Remote Control Unit)

| | |
|-----------------------|--|
| Display | 3" Inch TFT 6 line colour display with zoom function |
| Operating temperature | 5 to 45 C |
| Storage Temperature | -20 to 50 C |
| Humidity | 95 % non condensing |
| Battery | Li-Ion |
| Battery Life | 30 hours |
| Charging | Inductive trough base unit or via USB |
| Memory | Internal or SD Card (2 GB) |
| Digital Communication | USB port |
| Blue tooth Range | 100 metre in free AIR |

RASI 800 MCERTS specification (Calculated parameters)

| | |
|---------------|---|
| Efficiencies | ETA 120 % |
| CO2% | 0 to CO2% max (fuel dependant) If CO2% NDIR is NOT installed |
| Heat losses | 0 to 99.9 % |
| Excess Air | 0 to 99.9 % |
| Flow Velocity | 1 to 40 m/s using Pitot Tube (optional) |

RASI 800 MCERTS specification (Sampling Probe)

| | |
|-------------------------------|--|
| Heated Head | Heated head with glass wool filter |
| Sampling line | 2.7 mt Viton Line, with integrated thermocouple for Temperature measurements |
| Probe Tube (to be specified) | Available 380, 500 mm, 750 mm and 1 m 1.5 m , 2 m and 1200 C temperature Range |



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

Publication

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