

Combustion Emission Monitoring

For efficient mapping of your gas turbine

■ How to start a gas turbine smoothly

Restarting a gas turbine after maintenance or an incident is not as easy as you might imagine. Adjusting the burners in such a way that the environmental impact is a minimum and the electrical efficiency is a maximum, requires great sensitivity. The balance between the primary air and the secondary air has to be optimal to limit the formation of C_xH_y , CO and NO_x . Consequently, the on-line monitoring of the composition of the exhaust gases is absolutely vital during such an adjustment procedure.

■ Accurate measuring unit, flexible service

Laborelec's Combustion-Emission Monitoring unit was designed for just such a situation. It is mounted on a compact trailer and can be set up anywhere. The rental includes flexible service. We are on the site rapidly, whenever you call. The exhaust gas analysers are state of the art. The measured data obtained are processed by the equipment, presented in a convenient form, and transmitted wirelessly to your control room.

■ Unmanned, experts on 7 days a week stand by

Laborelec's intervention can be limited to the installation and removal of the measuring unit. It is by no means necessary to keep a technician by the device permanently. It is possible to operate such a piece of equipment unmanned because it has automatic calibration. However our experts are always stand-by if you need them, ready to come to your aid whenever necessary, 7 days a week. So you can be sure that the mapping will run successfully under all circumstances. The calibration runs full-automatically - one touch of a button every four hours of operation is sufficient.



The technical Competence Center
in energy processes and energy use.
From innovation to operational assistance.



We will help you to maximise the environmental performance of your gas turbine.

■ Characteristics of the measuring unit

The Combustion-Emission Monitoring unit is a precision laboratory for exhaust gas analysis, built into a trailer. A PC runs software that drives the analysis equipment. This consists of four modern, extremely accurate analysis devices. These are simple to install on the turbine's exhaust, and they record the content of NO_x, CO, O₂ and C_xH_y in the exhaust gases. They have the following characteristics:

Component	Principle	Measuring range	Accuracy
NO _x	Chemiluminescence	0-50 ppm 0-150 ppm 0-500 ppm	Linearity : ± 1 % FS
CO	NDIR	0-100 ppm 0-2000 ppm	Linearity : ± 1 % FS Reproducibility : ± 0,5 % FS
O ₂	Paramagnetism	0-10 % 0-25 %	Linearity : ± 1 % FS Reproducibility : < 1 % FS
C _x H _y	FID	0-10ppm 0-100 ppm 0-1000 ppm 0-10 000 ppm	Reproducibility : (0-10 ppm) : ± 3 % Reproducibility : (the other measuring ranges) : ± 1 % FS

■ Processing and transmitting the data

The measured data are converted by the PC into convenient graphics, created in Labview. The PC communicates wirelessly with a second PC that can be set up in the control post, so that the whole adjustment of the turbine can be performed from there. The operator can follow the situation and its evolution on line. At the end he receives a complete report, stating among other items the change in composition over time of the exhaust gases, with all the different components. The operator can easily modify the graphics to his needs (which parameters are grouped together on the graphics, the scale, the units, etc.).

■ Countless references

As Electrabel's partner, Laborelec has build up 30 years of experience with the regulation of emissions from combustion facilities, and it continues to remain right up-to-date with the technical aspects. Naturally this experience and know-how has played an important role in the development of the Combustion-Emission monitoring unit. It's evident that so many industrial companies call on Laborelec to achieve the most efficient possible operation of their gas turbines. We assist in the mapping of gas turbines after maintenance or an incident, and also support the starting of new gas turbines with the Combustion-Emission monitoring unit.



Five reasons for you to choose Laborelec:

- you have one-stop shopping for your energy needs;
- you get access to more than 40 years of experience;
- you get rapid service with reliable solutions;
- you increase the profitability of your installations;
- you benefit from independent and confidential advice.

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Combustion for Power Generation

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