

# Fuji ACE Data QAL3

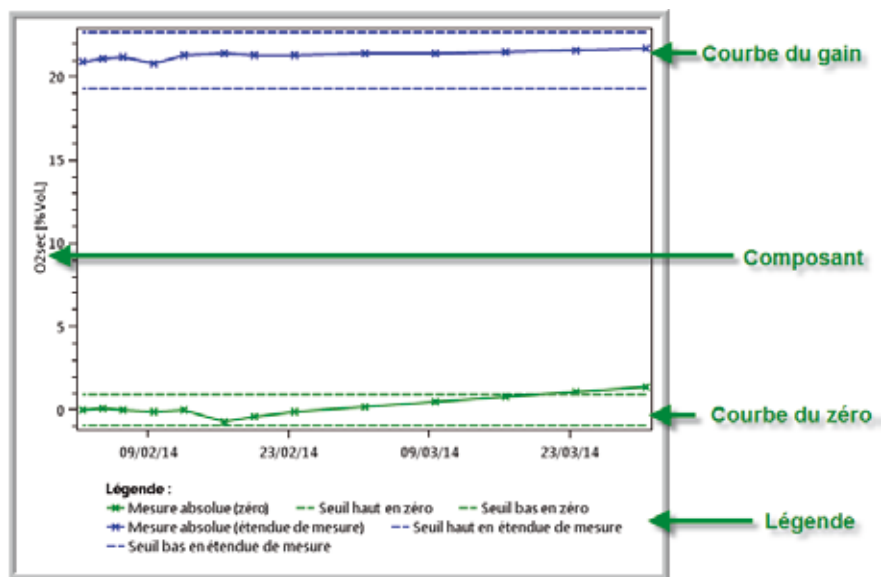
## Background and general description

The QAL3 procedure is the 3rd of the EN 14181 standard's quality assurance criteria. As it is an integral part of this standard and therefore of French regulations, combustion plant operators are now required to implement this procedure.

In principle, the QAL3 has two components:

- The operator must maintain the CEMS in optimal metrological condition,
- They must also be able to provide proof to the competent authorities that the metrological performances are constant and permanent.

The first step, therefore, simply involves performing the maintenance operations



recommended by the manufacturer, and to systematically record these maintenance operations.

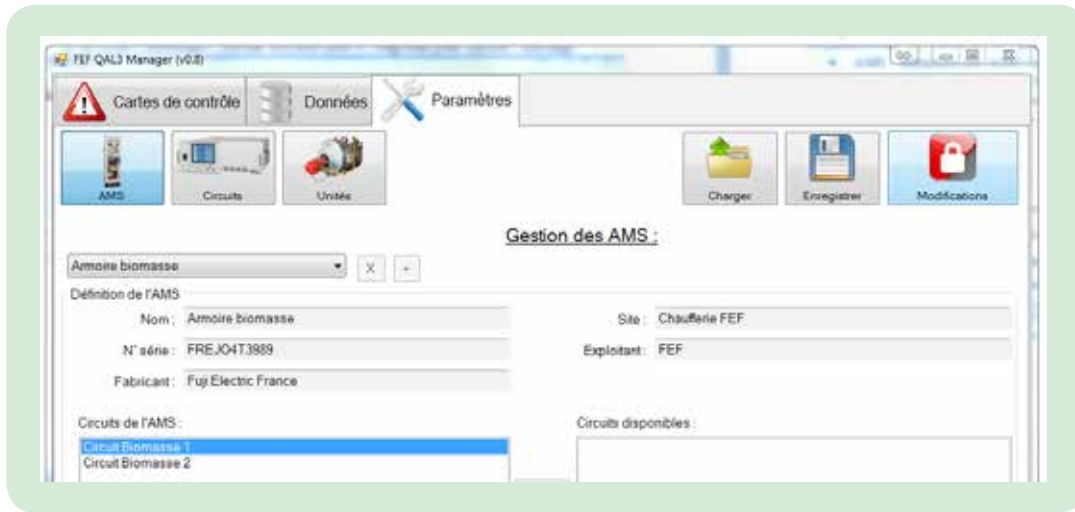
As in any quality assurance process: do what is written and write down what is done. These operations are as much the operator's responsibility (see the delivery/system commissioning DOE), as those performed by our maintenance services during monthly, quarterly or semi-annual preventive interventions as per the maintenance contracts that are established, and corrective interventions if necessary. Calibrations are an integral part of this maintenance. As mentioned in the DOE and in the Maintenance Contract, the operator must perform weekly zero (ambient air) calibration and monthly scale calibration using benchmark bottles (a responsibility taken on by FUJI as part of a monthly contract). In any case, this first step involves the strict maintenance of a

logbook.

The second QAL3 step involves checking analyser drift on a very regular basis. For each component, the zero gas measurement must be recorded each week on one table and the scale gas measurement on another (the weekly frequency being required for effective integration into a statistical control chart). Each control point is recorded, and the control chart uses the considered point and the previous points to alert the operator if the measurement shows abnormal drift or a loss of fidelity.

# Fuji ACE DATA QAL3 software

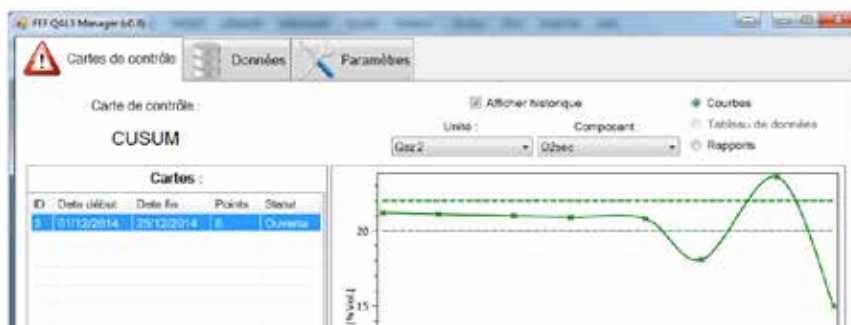
Fuji Electric has developed the Auto Check Extensive Data software so that combustion plant operators can perform the complete QAL3 procedure, and are not limited to performing CEMS maintenance in accordance with the manufacturers' recommendation.



The tool has been designed to implement the required checkpoints on any type of combustion plant, regardless of the type of CEMS in place.

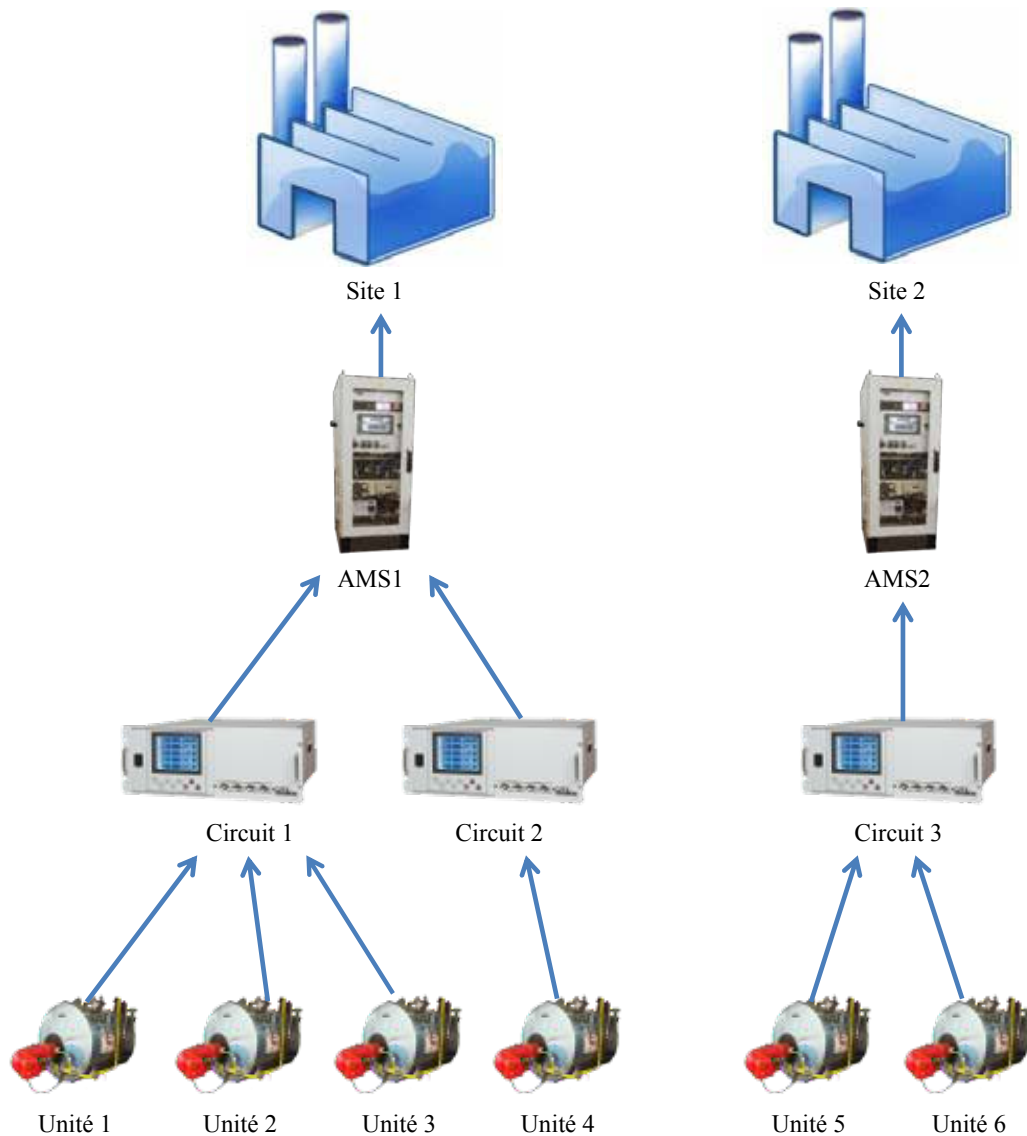
## ☐ QAL3 software functions in accordance with EN14181

- **Manual acquisition** of verification measurements
- **Integration** of measurements in CUSUM control chart
- **Drift alarm** if the drift exceeds the SAMS
- **Loss of fidelity alarm** if there is a deviation that is too far removed from the checkpoint
- **Display** of control tables and a general dashboard
- **QAL3 reports** edited on request



POINT ZERO		POINT DE REFERENCE					
µm	26,43 mg/m <sup>3</sup>	µm	25,35 mg/m <sup>3</sup>				
Carte zero	0 mg/m <sup>3</sup>	Carte zero	3000 mg/m <sup>3</sup>				
Signal Réel		Anciennes valeurs CUSUM		Signal Réel		Anciennes valeurs CUSUM	
C <sub>tar</sub>	24 mg/m <sup>3</sup>	C <sub>pos</sub> ( <sub>t-1</sub> )	75,32	C <sub>tar</sub>	990 mg/m <sup>3</sup>	C <sub>pos</sub> ( <sub>t-1</sub> )	0,00
A <sub>1</sub>	24 mg/m <sup>3</sup>	C <sub>neg</sub> ( <sub>t-1</sub> )	0,00	A <sub>1</sub>	-10 mg/m <sup>3</sup>	C <sub>neg</sub> ( <sub>t-1</sub> )	0,00
A <sub>2</sub>	24,00	A <sub>2</sub>	24,00	A <sub>2</sub>	-10,00	A <sub>2</sub>	0,00
NO <sub>x</sub> ( <sub>t-1</sub> )	0	NO <sub>x</sub> ( <sub>t-1</sub> )	0	NO <sub>x</sub> ( <sub>t-1</sub> )	0	NO <sub>x</sub> ( <sub>t-1</sub> )	0
FIDELITE				FIDELITE			
P <sub>1</sub>	4818,96	P <sub>2</sub>	1292,31	P <sub>1</sub>	1943,82	P <sub>2</sub>	1193,60
S <sub>1</sub>	-1292,31	S <sub>2</sub>	0,00	S <sub>1</sub>	-1193,60	S <sub>2</sub>	0,00
NO <sub>x</sub>	0	NO <sub>x</sub>	0	NO <sub>x</sub>	0	NO <sub>x</sub>	0
TEST de fidélité: AMS sous contrôle				TEST de fidélité: AMS sous contrôle			

The software has also been dimensioned to handle the largest combustion plants in terms of the number of boilers. The hardware (laptop PC) is a flat rate, and the licences and services are then costed based on the number of supported boilers (maximum 20 boilers).



#### ❑ Hardware support

The software is installed on a Fuji laptop, which allows the operator to acquire checkpoints straight from the analysis cabinet. The portable PC + software package is factory pre-set. Required information for this pre-set:

- Number, denomination and type (fuel) of each boiler
- For each boiler:
  - ⇒ VLE of each pollutant
  - ⇒ Measurement scale of each analyser for each pollutant
  - ⇒ Concentration of benchmark gas for each pollutant

#### ❑ General specifications

**Adaptable** to any type of boiler and any type of GEMS

**Combustion facility** with unlimited number of boilers

**Measurements** conducted:

- ⇒ CO, CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, O<sub>2</sub>, NH<sub>3</sub>
- ⇒ Dusts
- ⇒ Flow, pressure, temperature

**Configuration** by FUJI

**Use** by FUJI and/or by **operator** after **training**

## □ Configuration and training

The factory pre-set must be refined on-site. This is performed on-site with a FUJI technician and support from the operator. After the configuration, introductory training will be given to demonstrate the software and provide the first hands-on experience. This initial one-day service must provide the opportunity to check that all the necessary elements are available (data and standard gas), and subsequently allow the operator to carry out the QAL3 operations independently if he wishes.

In less than one week after this first intervention, a second appointment will be made for a few weeks later where a new checkpoint can be implemented in the presence of a FUJI technician. In this way, any questions that may have been raised by the operator in the meantime can be answered, and support provided for the final implementation of the QAL3 procedure.

At this stage, the operator can normally operate autonomously. However, Fuji also offers a complete service that fully covers checkpoints.

The Fuji ACE DATA QAL3 solution involves more than just software, however, and features a global protocol including:

- Laptop
- Site-specific licensing
- Configuration based on site and CEMS characteristics
- Initial training
- Follow-up support training



---

## Fuji Electric France S.A.S.

46 rue Georges Besse - Z.I du Brézet  
63039 Clermont Ferrand cedex 2 - FRANCE  
France : Tél. 04 73 98 26 98 - Fax 04 73 98 26 99  
E-mail : [sales.dpt@fujielectric.fr](mailto:sales.dpt@fujielectric.fr)  
Web : [www.fujielectric.fr](http://www.fujielectric.fr)

---

Fuji Electric can accept no responsibility for possible errors in catalogues, brochures and other printed material. Fuji Electric reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. All rights reserved.

---