

Data Acquisition and Handling Systems (DAHS) for Continuous Emissions Monitoring Systems (CEMS)

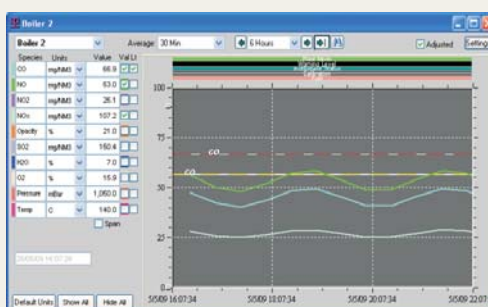
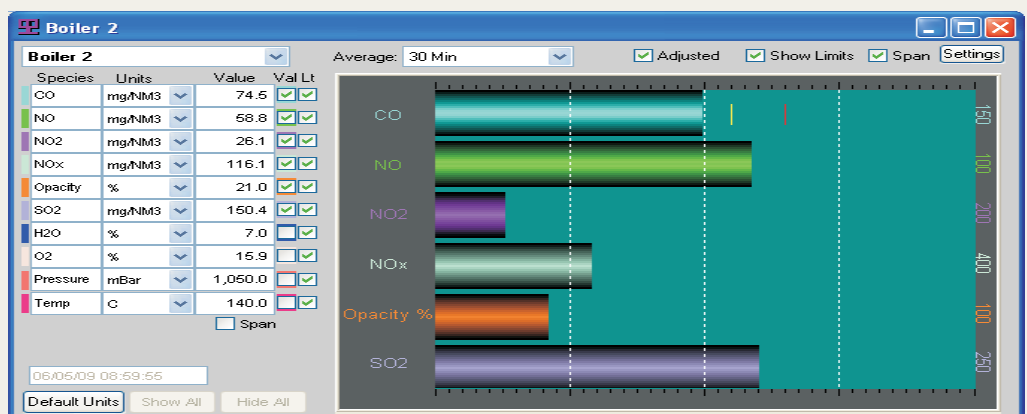
CEMWindows is a comprehensive Data Acquisition and Handling System (DAHS) which has been developed by G2 Data Systems Ltd specifically for use in industrial systems where there is a requirement to measure, display and report plant data and/or stack emissions data.

CEMWindows can capture data from any instruments that output their measurements as standard mV, V or mA signals or as digital data on an RS485 bus using MODBUS protocol. A high-resolution (16 Bit) A to D converter converts the analogue signals to digital format before sending the data to the CEMWindows program via high speed 2-wire MODBUS communications where it is averaged and, if necessary, Normalised to standard reference conditions.

The data is stored on the PC hard drive (minimum of 10 years data storage capacity) where it is used for real-time and historical presentation via Bar Charts, Trend Screens and Grid Displays. Any necessary calculations (such as converting Opacity % into mg/m3 using a Dust Calibration Factor) is then carried out by the CEMWindows software and stored on the hard drive.

User-definable report generation allows for submission of data to local inspectors and the Environment Agency in the required formats for the site.

- Latest generation software written to comply with the Environment Agency's "MCERTS Standards for Environmental Data Management Software" document released June 2008.
- Logs, stores, displays, trends and reports plant / emissions data in the formats required by local inspectors and the Environment Agency
- Real time data acquisition via serial data or 16-Bit A to D conversion of analogue input signals
- Cost-effective 2-wire communications between the PC and the remote A to D units via RS485 network
- Uses ADAM 5000 Series modules for multiple data I/O points (up to 128 I/O points per module, up to 256 modules per system)
- Fully flexible software allowing multiple windows to be displayed on large flat-panel monitor
- Multiple, fully configurable block and rolling averages along with partial averages which are used for predictive monitoring
- Emissions data input/output in user-definable units including ppm, mg/m3, mg/Nm3, Kg/hr, % and any other required site-specific units
- Powerful, configurable, multi-level event handling capabilities including alerts via email and audible/visible alarms

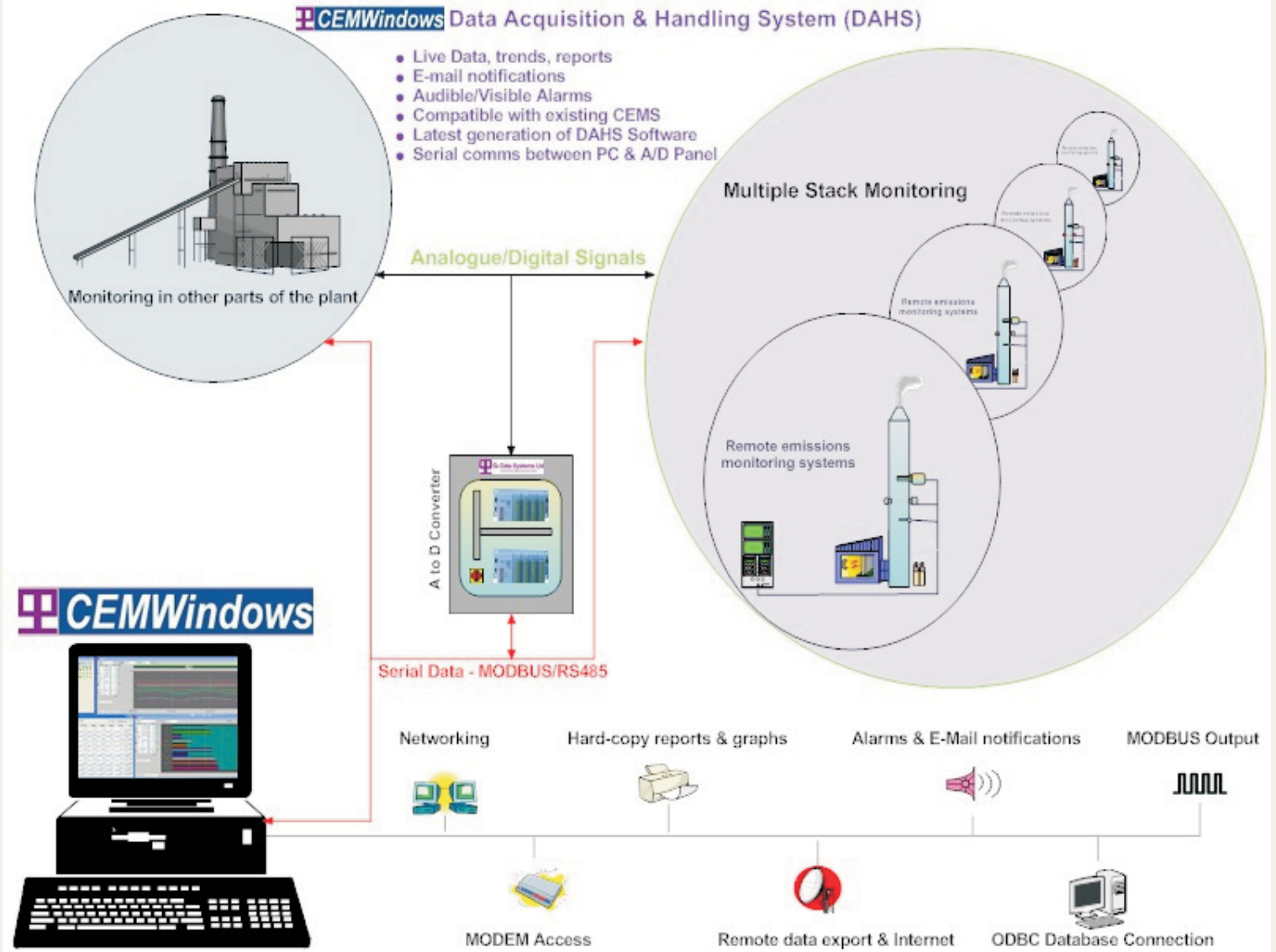



The screenshot shows the 'Current Values' window with a table of current values for various species over different time intervals. The table includes:

Species	Units	30 Secs	2 Min	10 Min	30 Min	2 Hour	Day
CO	mg/Nm3	79.42	71.49	52.48	74.50	65.25	68.01
NO	mg/Nm3	63.16	56.45	41.92	58.84	51.77	53.87
NO2	mg/Nm3	26.08	26.08	26.08	26.08	26.08	26.08
NOx	mg/Nm3	122.70	112.45	90.21	116.11	105.29	108.50
Opacity	%	21.00	21.00	21.00	21.00	21.00	21.00
SO2	mg/Nm3	150.40	150.40	150.40	150.40	150.40	150.40
H2O	%	7.00	7.00	7.00	7.00	7.00	7.00
O2	%	15.90	15.90	15.90	15.90	15.90	15.90
Pressure	mBar	1,050.0	1,050.0	1,050.0	1,050.0	1,050.0	1,050.00
Temp	C	140.00	140.00	140.00	140.00	140.00	140.00

G2 Data Systems Ltd

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CEMWindows has been designed and written to comply with the MCERTS standard for software as listed below and is being entered for MCERTS/TUV in 2010:

- MCERTS Standard for Environmental Data Management Software- June 2008
- Part A - generic software quality
- Part B - data management application standard
- Part C1 –Continuous Emissions Monitoring Systems (CEMS) data management applications – Generic Requirements
- Part C2 – Continuous Emissions Monitoring Systems (CEMS) data management applications – EN14181
- CEMWindows is written to conform with BSEN14181 and the European draft standard CEN/TC264 Stationary source emissions — Quality assurance of data obtained from automated measuring systems. When this draft standard is formally released, MCERTS and TÜV will swing into line with it.
- G2 Data Systems provides CEMWindows for use on sites which must comply with LCPD, WID, PG1-12 and numerous other directives.
- It is also our intention to ensure that the software complies with the Industrial Emissions (Integrated Pollution Prevention and Control) Directive or IE(IPPC)D when it comes into force in 2011.
- G2 Data Systems is currently seeking ISO9001 accreditation for its internal quality management system.

