



CEMData

A fully integrated PC-based data acquisition and report generation package developed specifically for the complex requirements of continuous emissions monitoring and reporting.

CEMData has been designed for maximum flexibility combined with ease of use, implemented via a hierarchical system of access control to the following levels:

- Application set-up *Project-specific assignment of measurements, alarms, status signals, acquisition parameters*
- Maintenance mode *On-line tools including built-in digital storage oscilloscope, assignable by software*
- Supervisor mode *Interpretation of legislation into report templates, set-up of all operator parameters, etc.*
- Operator mode *Real-time monitoring and report generation*

System

Custom-assembled PC system to suit client's requirements, typically 1GB RAM, 2.8GHz Intel dual core processor, 2 x 250 GB HDDs, 48x DVD

Operating system Windows® 2008 server, Windows® 7 Professional

Integrated data acquisition and report generation software written in-house by LOWE Engineering.

Traditional solution:

On-board PC data acquisition cards can be fitted, typically 32 x 16-bit Analogue inputs + 32 digital I/O per card providing analogue and digital input/output signals as required - number of cards limited only by capacity of PC and/or auxiliary chassis.

Modern alternative signal handling by:

Serial data I/O via RS232 ports.

RS485 data I/O via MODBUS ASCII and/or MODBUS RTU as MODBUS master or slave.

TCP/IP data I/O via LAN/WAN using Ethernet (MODBUS/TCP).

CEMData client/server workstations networked via LAN/WAN using CEMBUS (TCP/IP).

CEMData OPC DA 1.0 & 2.0 interface

Data security and backup

CEMData runs automatically on power-up. A watchdog timer can be provided to alert the DCS or SCADA of system failure.

Cost effective options include write-only archive on second hard drive, mirrored drives or RAID array.

Data stored in secure binary format, system security to US Dept. of Defense level C2.

Data handling

CEMData maintains three rolling data archives of data, each widely configurable for frequency and archive length:

- Real-time data *typically written every 1-2s, over-written after 1 hour*
- Semi-historical data *typically written every 2-10s, over-written after 6 months*
- Main archive *typically written every 1min, over-written after 10 years – used for all report generation*

Time and date representation

All times are stored and displayed in UCT (=GMT). Internal representation uses the FILETIME structure, a 64-bit integer representing the number of 100ns intervals since 1/1/1601.

Synchronisation to national/international atomic radio clock or via LAN/Internet.

Report generation

"One-click" report generation to user-generated pre-defined report formats

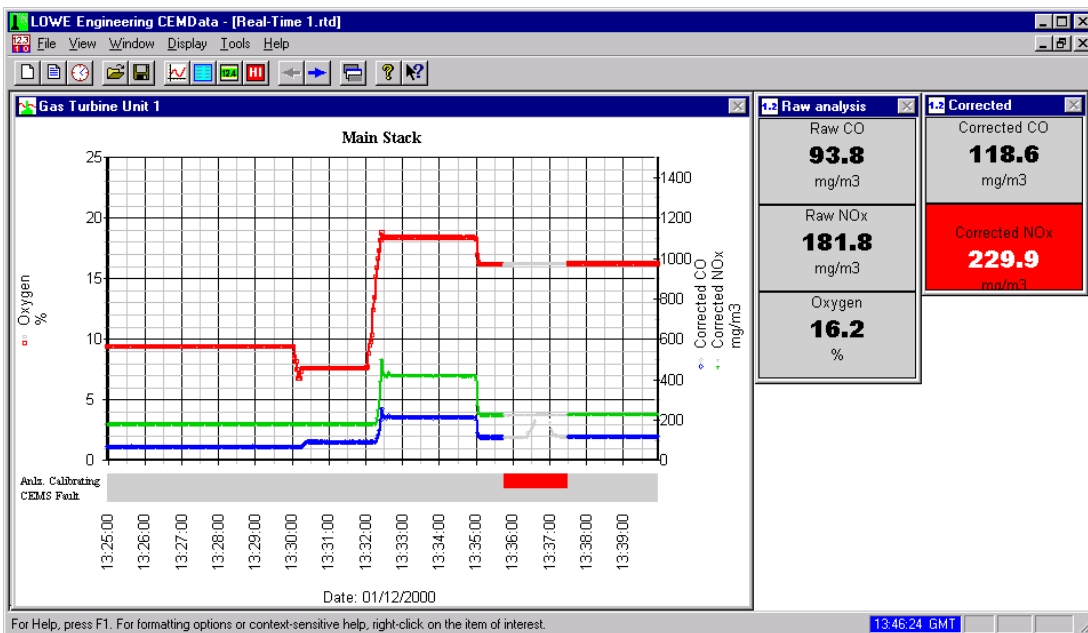
Fully automatic report generation and printing with flexible options for date/time logic

Custom reports on demand using pre-defined report formats or freely formatted by the user

Historical data display

Powerful zoom feature for on-screen display of all semi-historical data over any interval up to 24 hours

Real-time data display screens with charts, tables, graphs, digital meters, emission countdown meters, annunciators.



Typical real-time display screen

Report Template Manager

Report Templates: Measurement Data | Digital Status Signals/Alarms

Report template: Daily emissions

Measurement name: mg/m3

Corrected CO
Corrected NOx

Report period: Daily

Remove Add
Copy Settings
Paste Settings

Oxygen
Raw CO
Raw NOx
Corrected CO
Corrected NOx
GT Fuel
DB Fuel
GT Power
ST Power

Input data

10 minute averages
 1/2-hourly averages
 Hourly averages
 Daily averages
 Weekly averages
 Other: 1 minute

95% confidence interval
Deduct 95% Confidence Interval

Averages

Fixed period
 Rolling

Rolling % within limits:
 % within limits
 High limit A
 High limit B
 Low limit A
 Low limit B

Roll period
 24 hours
 7 days
 Custom hours: []

Statistical data for the report period

Values not exceeded by:
 95% of valid data points
 97% of valid data points
 Custom: [] %

Percentiles:
 95th percentile
 97th percentile
 Custom: [] th

Interpolation
 Use linear interpolation
 Use mean of higher/lower
 Use higher point
 Use lower point

High limit A: 50 High limit B: 150 mg/m3

Max. period above limit:
Cumulative time above limit:
Diary above limit:
Percent valid data points within limit:

Missing Data... Low limit A: 0 Low limit B: 0 mg/m3

Max. period below limit:
Cumulative time below limit:
Diary below limit:
Percent valid data points within limit:

OK Cancel Apply Help

Setting-up a report template

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