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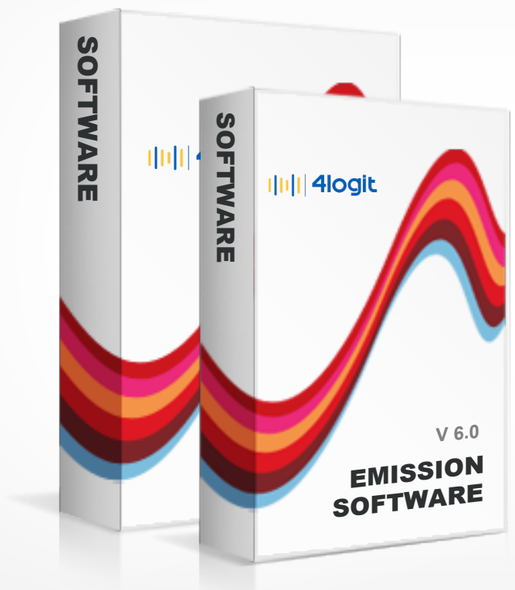

Version 6.0

EMISSION MONITORING SOFTWARE

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1

WHAT IS EMISSION MONITORING SOFTWARE?

Author: admin

Emission monitoring software is a part of CEMS ecosystem and has working between emission analysers and CEMS users including authority, and results produced by software platform has a great importance because it is directly related to environment and control of pollution degree and while bringing advantages for environment, it advises factories how they can take measure for less pollution for environment. Emission monitoring software works according to government regulations. Most common are EPA - USA and TUV norms of Europe. Emission monitoring is not only data collection and visualisation process. There are many operations like event based data validity, calculations and condition based reporting, also real time connection to the local authority systems.

Read more

2

DATA VALIDATION

Author: admin

Data validation is the first and one of the most important steps in the emission monitoring evaluation process. Any collected data may not indicate stack gas or dust or flow value due to some reasons or events which influence measurements. Also some events affect only some parameters as independent and this can create problem for further steps of calculations and also there are some requirements of the regulations for these cases including data getting periods and its averages.

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3

CALCULATIONS

Author: admin

Calculations start after data validity and continue until almost the end of all operations. There are two different sides for calculations. One can be said for conversion of units staying with relation of event based data validity. These calculations start from ppm to kg/h values in chain for concentration measurements. There are other calculations for conversion of units for going to flow. And second calculations are related with real time averaging of validated and calculated all parameters in each unit steps and as continuation to calculation, condition based reporting and producing indications related with QAL3 based results can be other calculations within calculation procedures.

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4

CALIBRATIONS

Author: admin

Calibration or routine checking process is one of the most important topics of CEMS. In the regulation, for long term measurement security, there are some routines called QAL, coded QAL1, QAL2 and QAL3. While QAL1 is related to the manufacturing process of the analyser, QAL2 and QAL3 are related to after commissioning of the CEMS or during operation. QAL2 is performed by an independent accredited laboratory and the results of QAL2 for each parameter are entered into the emission monitoring software, and QAL2 entry is directly related to measurements and also calculations. Let's note QAL2 here, and QAL3 done by CEMS system integrators or CEMS users, operation can be done by manual or automatic using reference gases. QAL3 results are fed into the emission monitoring software to make some calculations depending on previous QAL3 results... There are special reports like CUSUM, EWMA and SHEWHART... QAL3 reports give some comments to the user to perform re-calibration or maintenance of analysers.

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5

REPORTING

Author: admin

CEMS reporting requirements are completely different from regular data acquisition system reports. Apart from regular data reports between two dates, there are special reports that are event based or according to data validity. Report results determine both the health of CEMS with available data and how exceeded the limit for pollution of environment.

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6

DATA SECURITY

Author: admin

Data security is a measure for collected, calculated emissions data. Electronic recording systems are often open to data manipulation. This is the point that it should have a look for an emission monitoring system and end user or authorities should periodically double check from analyser to software for data's correctness. While one point is data accuracy, another point is database security of the emission monitoring software. Software databases must be inaccessible or unalterable. Users and system integrators as well as authorities should take care of this point.

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7

CYBER SECURITY

Author: admin

Especially in the last 20 years, day by day, cyber security is becoming more and more important for the software working at network. Cyber security is also an important issue for the emission monitoring software because the importance of data results' evaluation or data availability or the requirement of last 5 years' data availability in the system are required to take the highest measures for the emission monitoring platforms. Inaccessible databases, password-protected connection or two-factor authentication and some other software measures can be points that we should take care of.

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1

TECHNOLOGY

Author: admin

Version 6.0 has pure web technology, it is one hundred percent web-based software. Responsive design function is supported in the system, mobile visualisations have own page design without interrupting the views. Modern visualisations are specially developed. For connection to the system via web, there is password protected entry. Two-level authentication by e-mail service is also supported as an option. V6's database is inaccessible and unchangeable against data manipulation. V6 is able to work on Linux operating system (as an option) except Windows OS. V6 is available from 1 stack to 20 stack versions and there are also some options that can be ordered with the main emission software. Version 6 is developed according to today's Industry 4.0 or IIoT requirements. For this, there is a data sharing option to deliver data to other automation platforms such as Scada or DCS, while there is a real-time connection to central authority systems.

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2

CONFIGURATION

Author: admin

Version 6 has parametric design especially for the CEMS Integrators. Integrators can easily perform commissioning themselves, from channel definitions to alarm settings or display visualization settings. There is a System Integrator Program for version 6, which includes special benefits and training packages.

Read more

3

SECURITY

Author: admin

As a web-based platform, there is more than one option for secure connection. Passwords can be changed by the user or the team manager. Also as an option, v6 has two level authentication function. After the user has entered the password, the system will send an email containing a time limited password to the user's email address, after entering this second password which came by email, then emission monitoring will open the pages.

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4

USERS

Author: admin

V6 has a total of 4 authorization levels for users. 2 of them are specifically for system integrators. The rest are for users of the emission monitoring system. One of the user levels is Engineer and the other is Operator. In short, while Operator user is mainly doing monitoring and reporting purposes, Engineer user is able to enter also for QAL2 and QAL3.

Version 6.0 supports 2 web users simultaneously, even both Engineer or Operator user or one is Operator and other is Engineer simultaneously.

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5 COMMUNICATION

Author: admin

Communication details are the first step in the data acquisition and also in the data validation process. Variety of the device numbers to communicate with an emission monitoring software provides availability for all applications according to different types of hardware brands.

V6 Emission Monitoring System is a package of software and the specialised gateway called CEMx300. The gateway also has different types of tasks in the system. There is buffer memory inside for collected data from the site against network disconnection problems that emission software has running. The data logger memory is only for the last two days. When reconnected, all undelivered data is automatically delivered to Emission Software. Other advantages of the CEMx300 are the elimination of cable or wiring clutter and the ability to separate the instrument level from the factory network. CEMx300 is only used to transfer and record the raw values coming from the analysers, there is no calculation or data validation process inside.

CEMx300 accepts all Modbus connections as Rs232, Rs485 or Ethernet and also ELAN protocol as Rs485 for Siemens gas analysers.

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6 INVENTORY AND SERVICE

Author: admin

V6 Emission Software is allowing to entry of details of instruments used in a CEMS by the System Integrators. Inventory entries provides data for technical service operations and also can share with the authority connection if needed.

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7 QAL 2

Author: admin

QAL2 is a step of Emission Calculation process according to regulations. V6 Emission Software is allowing this entry by the authorized level user and do calculations according to QAL2 entry for each related parameter.

QAL2 entries can be reported as Excel.

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8 QAL 3

Author: admin

QAL3 is also a step of Emission Calculation process according to regulations. V6 Emission Software is allowing this entry by the authorized level user and do calculations according to QAL3 entry for each related parameter.

QAL3 entries can be reported as Excel and There are some special reports called CUSUM, EWMA and SHEWHART which generating from QAL3 entries. These reports give comment to CEMS user that calibration may needed for the gas or dust analyzers.

QAL3 process supports as both Manual and Automatic in v6 Emission Software platform. For Automatic QAL3, there is CON1000 controller which providing by us for v6 Emission Software to manage cylinder valves automatically.

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VISUALIZATION

Author: admin

Version 6 provides users with rich visualisation options. The user interface has been redesigned to provide more informative views. There are numeric, gauge and bar graph formats, as well as real-time averaging bar graphs specific to emissions monitoring.

Alarms can be monitored in real time on the displays by changing colour according to alarm set points for each real-time measurement and calculation, including real-time averages.

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10

DISPLAY SETTINGS

Author: admin

Display management in v6 Emission Software is parametric. Users can choose which parameters to display and where to display them.

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11

ALARM MANAGEMENT

Author: admin

Alarm management is an important part of the emissions monitoring ecosystem. So we have reviewed the alarm management in the latest version called v6.0 of our emission software series. We have separated the alarms into two, one being critical alarms and the other being normal alarm conditions. If the user or system integrator selects the parameter as a critical alarm, when any alarm happens, the software will immediately create alarm alerts for that parameter using email, color changing visualization or SMS. If a normal alarm is selected for a parameter, this alarm will be evaluated by periodic alarm checking procedures. The timing of the periodic alarm checks can be selected. E.g. if this is selected 30 min, software will check every 30 min if there are alarms already occurred, then will prepare a list for all alarms and send them in one alert.

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12

DATA SHARING

Author: admin

Normally Emission data streams inside of CEMS chain from measuring point to Authority Central system. Many times factories also would like to see their data in their Scada or DCS system to use for their other evaluations and as the part of Industry 4.0 or IIot Revolution. This can be an acceptable request if there is no manipulation risk via their system into Emission Data.

V6 Emission Monitoring software has an option called “Data Share”. Protocol is OPC UA Server. Factory can take validated measurements and calculated parameters as realtime by OPC UA protocol. There is only data reading and no write function into Emission Software. This is an option and should be ordered separately.

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AUTHORITY CONNECTION

Author: admin

CEMS is an application by reference of government in countries. Authorities may have different type of central software platforms and Emission Softwares installed factories should connect them according to own protocol method of central software.

V6 Emission Monitoring Software is open to integration with different authority connections. This topic is always open for discussion. For further information please contact 4Logit.

V6 platform can have integration options such as Web Service, Database (SQL), OPC UA Historical Access, MQTT, REST methods.

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COMPUTER HARDWARE

Author: admin

For v6 Emission Monitoring Software or for any software that should run non-stop during the year, the users or system integrators must prefer to use computers that are able to work non-stop, known as Work Station, Server, Industrial Panel PC or Industrial Box PC.

System Integrators can use their own computer for v6 Emission Monitoring Software installations if they carefully choose the computer hardware.

Alternatively, you may prefer to purchase the Emission Monitoring Software together with a Box PC or Panel PC as a bundle from us. In this case the system is delivered to you fully installed and ready to use.

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