




The 7 Most Frequent Errors in Data Recording and Real-Time Visualization






Data recording is the most extensive task within a quality information system or performance measurement system. The more important it is that the required costs and time are used efficiently in order to gain lasting improvements (e.g. reduce failure costs, the number of rejects and the number of complaints, increase customer satisfaction, etc.).

It is significant to take all measures ensuring the utmost data quality concerning contents, completeness and correctness. The evaluation of the data, the description of processes and the resulting decisions can only be as good as the data on which they are based.




The following selection of error sources and weaknesses in software-supported data recording and real-time visualization informs about this topic and provides solutions with the application of the Q-DAS® products.




Error	Measurement values are recorded by hand being written on paper forms or lists.
	
Consequence	The procedure is time-consuming and leads to errors. Peculiarities such as trends or specification limit infringements are hard to detect. A new data evaluation requires great effort because the data has to be transferred to the respective systems first.
	
Solution	Use of the interfaces of the measuring devices (RS232 or file export) for an automated data transfer or processing. O-QIS and procella® support multiple device interfaces. Otherwise, when required, they can be extended by the respective interfaces.
	




Error	An exact allocation of the measurement values such as to machines, orders, form cavities or batches, is not possible because the additional data is not recorded or the recording of additional data requires great effort.
	
Consequence	Important information for the traceability is missing. Visualizations and evaluations related to additional data are not possible. The detection of weak points in the production process is difficult or impossible.
	
Solution	An automated query of additional data in the measurement process helps the operator to record data. Define which data is mandatory and which data must be changed and the data will be complete and correct to a large extent.
	

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Error	The operator detects peculiarities and specification limit infringements too late because a real-time visualization and an alarm management function are not available or only available to a limited extent.
	
Consequence	It is not possible to create a control cycle for corrective actions in the process. Such a control cycle reduces failure costs caused by rejects and removal of defects. The responsible do not have the information that is required to take real-time corrective actions.
	
Solution	O-QIS meets the requirements of a real-time control cycle. After the measurement has been completed, the measurement values are evaluated automatically and checked for specification, warning or control limit infringements. Messages, warning notices, clear graphics and statistical values are available to the operator. Further options are e-mail notifications or the automatic creation of reports.
	




Error	The operator cannot confirm and comment occurred alarms.
	
Consequence	For a comprehensive evaluation of the process, important information about the frequency and kind of alarm and their causes are missing. It is impossible to work out a specific action plan for the process optimization.
	
Solution	In case of alarms (e.g. control limit infringements), the operator is prompted automatically to confirm and comment the event, cause and/or action connected with them. Use catalogs containing defined entries for a reasonable evaluation of this information later on.
	

Error	The software cannot display the approved measurement procedure, e.g. in respect of the input sequence, sample frequency and repeat measurement.
	
Consequence	The procedure and test instructions must be adapted to the software. The aim to give optimal support to the operator by means of a software tool, cannot or hardly be reached. There is a risk of incomplete measurements or samples.
	
Solution	O-QIS or procella® offer extensive configuration possibilities to display the measurement procedure according to the respective requirements. The software leads the operator automatically through the measurement task. You can adjust all required steps, from opening a test plan to the measurement conclusion. The influence of the operator on the results is minimized.
	

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Error	The software's lack of flexibility makes it impossible to meet the task- and operator-dependent data recording and data visualization requirements.
	
Consequence	Specific aspects are unconsidered. You cannot realize individual visualization concepts for the different data sources (e.g. portable measuring instruments, 3KMGs, measuring machines or SPS controls), measurement tasks (e.g. continuous or discrete characteristics) or operator groups.
	
Solution	In order to support the operator, you can create individual recording or visualization levels dependent on the characteristics type and/or class, etc. The same flexibility must be available with regard to the inspection frequency. The daily single part measurement as well as the 100 % inspection conducted every second must be displayed properly. O-QIS is a tool meeting all these requirements.
	

Error	Erroneous measurements or erroneous entries are not detected. The unchecked measurements are saved into the database.
	
Consequence	The data quality is not good enough for later statistical evaluations or calculations of statistics. The actual process is described inexactly.
	
Solution	Use plausibility limits to detect values that cannot derive from the process, e.g. because they are erroneous entries, and to "trap" them automatically. The operator is informed about these values and can repeat the measurement or the entry.
	

Many of the errors listed above can be avoided by using the Q-DAS[®] software procella[®] or O-QIS.

Here you can find more information about data recording and real-time visualization:

- [Book: Performance Quality Systems for the Quality Evaluation in Industrial Production](#)
- [AQDEF – Automotive Quality Data Exchange Format](#)
- [Seminars](#)
- [Hotline](#)