

SR::Validate turns measured data acquired by the DCS into reliable data base

By applying standardized algorithms (VDI 2048), abnormalities in measuring, mode of operation, and plant become visible and redundant information becomes commercially useful.



The continuous and safe operation of power plants presupposes the real-time acquisition of a vast number of physical quantities. The utilization of these values for the efficient assessment of the current power plant process as well as for the plausibility check of the available measurement instrumentation strongly depends on the accuracy of the measured values. SR::Validate applies the standardized statistical procedure described in VDI 2048 to the acquired data and thus continuously provides

reliable data records that comply with mass and energy balances and describe the quality of each measured value in the form of confidence intervals. This is ensured by the strict quality criteria of the statistical procedure and the compliance with the mass and energy balances as well as with the valid physical properties tables. The implementation of SR::Validate shows the first immediate benefit as early as during the introductory stage.

The online process data reconciliation provides the user with the “real” plant condition at all times, i.e. with the most probable condition taking into account all boundary conditions, measurement uncertainties, and current measured values. In addition, the user receives an assessment of the data record at a global as well as local level (of each individual sensor). With SR::Validate, changes of the sensors as well as of the mode of operation of the plant are monitored continuously and efficiently.

Typical, sometimes significant benefits in the implementation phase

- Plausibility check of the measuring sensors
- Identification of unintended modes of operation, e.g. leakages in the area of the water/steam system or the air/flue gas system

SR::Validate determines the most probable “real” actual condition of the power plant process online and makes it available for reliable analyses in the form of reconciled measured values and their confidence intervals. The application of the quality criteria of VDI 2048 ensures the continuous quality of the results.

Making process knowledge commercially useful

- Creating a reliable data base of energy and mass flows in the plant
- Optimally monitoring the measurement instrumentation
- Closing balances, detecting leakages, and thus increasing the economic efficiency
- Unlocking areas that are inaccessible in terms of measuring, e.g. in the wet steam area, components on a shaft, ...
- Describing significant benefit by means of initial evaluation during the system implementation
- Reliably detecting changes and making them traceable over time
- Applying a state-of-the-art standardized procedure
- Supporting performance and acceptance measurements
- Making complex coherences easily accessible on the basis of an ergonomic and user-friendly graphical user interface in an open architecture

Via the underlying long-term archive SR::x, all data are available for further evaluation like e.g. for process quality monitoring, reporting, etc. The detailed EBSILON®*Professional* model is on hand for extended analyses; via its graphical user interface, it grants the trained user full access to the configuration as well as all results. In the context of performance and acceptance measurements, the reconciliation model offers valuable information already while carrying out the tests.

The model is a full-fledged representation of the power plant process. It contains all essential components from the air/flue gas path via the utility steam generator or gas turbine and heat recovery steam generator at combined-cycle plants right up to the water/steam cycle and the cooling water system.

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