



Converting Process Data into Valuable Information

A continuous process monitoring with neural networks and statistical tools enables the early detection of creeping process changes. Moreover, owing to a central data management, existing measured values can be stored in long-term archives, the preparation of analyses can be significantly facilitated, and the reporting can be standardized.

In the cement industry, it is not uncommon that measured data are gathered in several independent systems. This does not pose a problem for the plant operation as the individual process controls can work independently of each other. In the context of operation management, however, it often results in a considerable effort e.g. to merge the data in reports or to detect changes in the production process early on.

Efficient data management

SR::x enables the long-term data storage including data export to MS Excel and thus the analysis of the operating data over longer periods of time.

The data server SR::x is a central data archive that allows

for the long-term storage and provision of measured values from virtually all data sources via usual interfaces and protocols. In addition to the mere storage of numerical data, SR::x condenses the data into hourly, daily, and monthly values and enables calculations like e.g. balancings etc. by means of the integrated set of mathematical formulae. The powerful and easy-to-use visualization allows to access the data from each workstation in the office. Coherences and chronological sequences can be easily analyzed with displayed process graphics, charts, and diagrams.

A well-arranged log allows to document important events in order to analyze them later e.g. with the help of trend diagrams.

The data management system also contains an MS Excel add-in for direct access to the data stored in SR::x from MS Excel. With this feature, automated reports of relevant operating data that support the operation e.g. as daily and monthly values can be created immediately.

Reliable early detection of process changes

SR::SPC uses neural networks in combination with statistical tools for the automatic online analysis of the operating behavior.

By means of the SR::SPC module, creeping changes in the plant operation are detected automatically. For this, the current process is continuously compared to the expected behavior and assessed on the basis of high-quality key performance indicators (KPIs). In the case of statistically significant changes, this is reported as an event to the user, who is thus actively informed early on. SR::SPC is applied e.g. for monitoring bearing vibrations, pressure drops, and el. power consumptions.

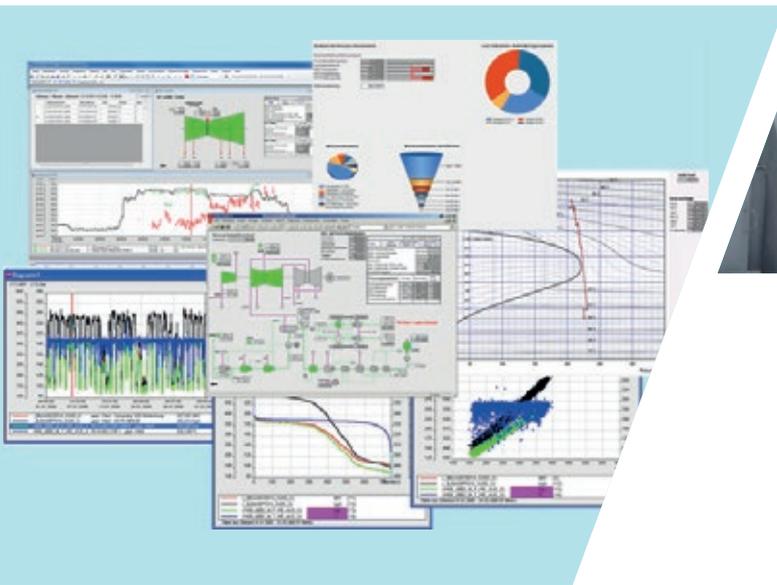
The most important benefits at a glance:

Data management SR::x

- Long-term archive with easy-to-use calculation function
- Powerful visualization
- MS Office integration
- Automated report generation

Predictive Analytics SR::SPC

- Automatic monitoring of important components
- Reliable alarming in the event of relevant process changes
- Full configurability and flexibility of the system for the user
- Comprehensive training program
- System maintenance with regular software updates and hotline by specialists of STEAG Energy Services



SR::x visualization



State Name	Caption	Act.KPI Rate	Event
ID Fan			
SPC_130D02HYV01	MOTOR VB. FRONT VERTICAL	0.993	
SPC_130D02HYV02	MOTOR VB. FRONT HORIZONTAL		
SPC_130D02HT02	FAN FREE-SIDE BEAR. TEMP	1.006	
SPC_130D02HT01	FAN MOTOR-SIDE BEAR. TEMP		
SPC_130D02M1J01_SPECIFIC	Kiln 1 ID FAN POWER specific	1.022	
SPC_230C001M1J01	Kiln 2 ID FAN POWER	1.053	
Raw Mill 3			
SPC_320MF31M101	Fan Motor Current	1.005	
SPC_320MF31M101_SPECIFIC	Fan Motor Current specific	0.954	
SPC_320RM31N1V01	Raw Mill 3 Fan Vertical Vibration	0.975	
SPC_320MF31N2V02	Raw Mill 3 Fan Vibration Free Side	1.025	15
SPC_320MD01N3V01	Mill Motor Vibration (Front)	1.013	
SPC_320MD01N3V02	Mill Motor Vibration (Backside)	0.987	
SPC_320MD01M1J01_SPECIFIC	Mill Motor KPI specific	1.041	
Cement Mill2			
SPC_260CF05M1J01	SEPARATOR FAN POWER		
SPC_260CF05M1J01	Copy of SEPARATOR FAN POWER		
HAKAN CHECK			
SPC_260MD02M1J02	ROLLER PRESS MD02 MAIN MOTOR POWER	0.997	
SPC_260MD03M1J02	ROLLER PRESS MD03 MAIN MOTOR POWER	1.003	
SPC_130D02M1J01	Kiln 1 ID FAN POWER	1.010	
SPC_130K02M101	KILN 1 MAIN DRIVE CURRENT		
SPC_135CF03M101	FILTER FAN-1 CURRENT	1.006	

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