

KS98-1 temperature controller boosts boiler efficiency



Application

Steam and hot water boiler systems.

Challenge

To reduce energy consumption, minimise energy losses, maintain availability, and prevent plant downtime.

Solution

Use the KS98-1 to switch smaller energy units on and off according to demand.

Operational economy in steam and hot water boiler applications is determined by the efficiency of component devices and equipment, and is reduced considerably with sub-optimum load conditions. A powerful way to enhance efficiency is therefore not to supply the required energy via a single large device, but to distribute it over several smaller units. Regulating component devices with a multi-function controller offers many benefits that boost efficiency and the KS-98-1 offers these benefits in a particularly user-friendly format.

The PMA KS98-1 process controller from West Control Solutions is enhancing the operational economy of steam and hot water boiler applications. By using the controller to manage up to six devices, users can reduce energy losses, maintain availability, and prevent plant downtime by selective switching of individual devices for maintenance and repair. Engineers can also ensure the uniform operating time and wear of the devices through cyclical operation.

The challenge faced in almost every plant is to reduce energy consumption, a cost that typically accounts for a large slice of expenditure. Operational economy in steam and hot water boiler applications is determined by the efficiency of component devices and equipment, and is reduced considerably with sub-optimum load conditions. A powerful way to enhance efficiency is therefore not to supply the required energy via a



single large device, but to distribute it over several smaller units.

A multi-function unit like KS98-1 can be used to switch smaller units on and off in a defined order, according to the energy demand. By exercising precise control over each device, the

plant can achieve the best possible energy efficiency, gain greater flexibility in energy control and extend maintenance intervals for the control system.

The KS 98-1 is a compact, freely configurable multi-function controller that allows great flexibility in the execution of complex process control tasks in steam and hot water boiler applications. Energy demand is determined by a PID controller, which operates the individually-controlled device. If the control output exceeds pre-set limits, this means not enough or too much energy is available to keep the process value constant.

Accordingly, if the relevant set-point has not been reached and the process is responding too slowly, an additional device is switched on or off as required in order to manage demand correctly.





Any devices that are not available, for example those that have failed or have been switched off for scheduled maintenance, are automatically skipped.

The controller also enables automatic correction of control output. After an additional device has been switched on or off, the output of the control-led device is corrected automatically to compensate for the changed energy flow conditions. This ensures linear process response over the entire load range.

To extend operating life and enhance efficiency still further, the devices can be used on a rotational basis at defined intervals, which spreads wear and operating time across all units. This switching can be achieved manually, or automatically after a pre-set time has elapsed. Typically, the unit that has been in operation for the longest time will be placed at the end of the sequence, extending its remaining lifespan since it will only

be switched in under peak loads. To give the operator a complete overview of the system, the operating hours of each device can be logged and displayed on the controller.

The 160 x 80 pixel LCD display of the KS 98-1 enables bar graphs or trend curves to be viewed in high-resolution, while an extensive

function library is available to support the engineering of individual solutions, from analogue signal conditioning to digital signal operations, and cascade control systems to complex meshed control loops.

To maximise the number of systems in which it can be used, the KS 98-1 is equipped with a large number of analogue and digital inputs and outputs as standard, including facility for direct connection of lambda sensors or field bus connection.

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