Cleanroom environment

KS 94 / KS 98 application

Cleanroom environment precisely controlled with KS 98-DP and KS 94-DP

Humidity and temperature-dependent control

Decentralized system in a large building complex

Communication and coordination via Profibus

KEY WORDS

Air conditioning, cleanroom environment, temperature control, humidity control, fresh air admixture, air recirculation.

DESCRIPTION

Many modern production facilities require cleanrooms to ensure optimum product quality. This was also the case in two high-tech facilities for the development and manufacture of highly sensitive optical components.

Stable conditions for air temperature and humidity are two decisive factors for the cleanroom environment, whereby fresh air is admixed constantly.

Supervisory monitoring and coordination of the decentralized equipment is carried out by a PC and a PROFIBUS-DP field bus.

During system engineering, top priority was given to precise control and fail-safe operation.

IMPLEMENTATION

For the areas only requiring air temperature control, the universal controller KS 94-DP is used in both buildings.

For more complex control loops, e.g. involving temperature and humidity, the multi-function unit KS 98 is fitted.

Demanding control tasks such as min/max selection of influencing variables, or parallel operation of two differently-sized air flaps for highly accurate control of air flow over a wide range were solved without problems with the versatile multi-function unit KS 98. By means of PROFIBUS-DP, all the PMA controllers are linked to a supervisory PLC and a PC-based process management system.

One of the main reasons for customer's decision to use PMA's controllers were the high precision requirements; the specified temperature stability of ±0,25 K at 21 °C demands correspondingly complex control structures.

Another reason for the customer's choice was the safety that is provided by stand-alone controllers. For example, a possible disturbance of the PLC is limited to a particular area. All the other units continue working independently, thus preventing expensive downtimes and the resulting production losses.

UNLIMITED VERSATILITY

The flexible configurability of the KS 98 enables the above application to be extended with pre-configured library functions such as password protection, timer, programmer, etc., or even „home-made" partial Engineerings.

With additional operating screens, for example 6-line text display, trend display, and bargraphs, the projecting engineer is able to increase the plant's operational functions.

Moreover, by means of a user-specific menu structure, the transparency of the process data can be adapted precisely to individual requirements.

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