

Intelligent automation of process valves

Using valve terminals to lower costs in the biotech/pharmaceutical industry

Valve terminals, such as the CPX/MPA terminal from Festo, are more cost-effective than automation solutions with individual pilot valves, both in terms of investment and total cost of ownership. This is in part due to the "on board" electronics offering comprehensive diagnostic functions that help to avoid expensive system stoppages and improve maintenance processes.

In complex fermentation systems – but also many other automated biotechnological production processes – connecting the pneumatic process chain with the control system is associated with considerable expense. Process valves can be actuated via individual pilot valves, but also via decentralised valve terminals. A closer look at the costs shows clear advantages for valve terminal systems for installation in control cabinets as offered by Festo.

The primary factor in favour of a system solution is the presence of just one clearly defined and standardised interface from the valve terminal to the fieldbus, for example Profibus DP. In addition, with valve terminal technology there is no need for the binary output of the remote I/O for actuation of the individual valves (including wiring, installation and other additional tasks) required with the individual valve concept. In larger systems that are not too extensive, this often results in a saving of several hundred binary outputs, along with the planning that this would involve. This not only means a saving of installation costs, but also reduces maintenance.

Convenient condition monitoring

For a comprehensive comparison of costs, other factors should also be taken into consideration. From a cost point of view, reliable system operation is ultimately more important than the investment. The successful implementation of a system concept is only demonstrated in operation. And users can only reduce expensive unplanned system stoppages with a universal and functioning condition monitoring concept.

The valve terminal concept CPX/MPA, a combination of the remote I/O terminal CPX and the solenoid valve terminal MPA, noticeably increases system availability by means of convenient maintenance and diagnostic options. The MPA has its own chip (Festo ASIC) for this purpose. This electronic module enables valve-specific diagnostics for each solenoid coil. It can monitor the coil current and detect undervoltage, short circuits or cable

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