Press release

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Deluxe energy saver: the new SMC Air Management System reduces compressed air consumption by up to 62%

Pneumatic processes are standard practice in all sectors of industry. They also use a lot of energy, not least because compressed air is often wasted for various reasons. To remedy this situation and allow operators to benefit from other advantages, SMC has developed a new digital module for compressed air management with the Air Management System in ¼ to 1-inch connection sizes. Combining the regulator, hub and shut-off valve lets operators do more than simply monitor the pressure, temperature and flow of the air feed. By defining base parameters, operators can also make use of predictive maintenance and condition-based monitoring, ultimately reducing compressed air consumption by up to 62%.

Compressed air is one of the most common energy sources in industry, and also one of the most expensive. That's because only around 10% of the electricity used by an air compressor is supplied to the compressed air network in the form of effective output. This turns every cubic metre into a valuable asset and waste needs to be avoided. With this in mind, automation specialist SMC developed the new Air Management System in ¼ to 1-inch connection sizes. Above all, it helps to reduce compressed air consumption by up to 62%. In this respect, the digital module particularly impresses with its monitoring of pressure, temperature and flow as well as the programmable automatic pressure reduction and shut-off. PROFINET or EtherNet/IP™ can be used to connect to higher-level controllers. The integrated OPC UA server also supports operation entirely without a PLC while still benefiting from the Air Management System. What's more, additional systems can be wirelessly integrated into the solution. This makes it quick to install and the system can be easily retrofitted, even in brownfield plants.

Savings for your wallet as well as the climate

Whether poorly controlled air consumption, undetected leaks or the lack of opportunity to optimise processes for standby and shut-off times: all are reasons that lead to unnecessary air consumption, which is expensive for companies and the environment. The newly developed Air Management System, a combination of regulator, hub and shut-off valve, solves these problems in a range of different ways and can generate savings in compressed air consumption of up to 62%. That's because

SMC Deutschland GmbH
Boschring 13-15
63329 Egelsbach

Inga Reich
Tel. +49 (0) 6103 402-809
reich.inga@smc.de

Fabienne Vogt
Tel. +49 (0) 6103 402-889
vogt.fabienne@smc.de

www.smc.de

the comprehensive monitoring of the air feed pressure, temperature and flow enables anomalies in consumption to be quickly and precisely identified and automatically counteracted.

This is thanks to the programmable pressure reduction and shut-off times based on preset machine conditions. These features allow the digital module to automatically respond to errors, for instance with a pressure reduction. Preset parameters also allow shut-off and standby times to be defined, which are automatically activated. This generates considerable energy savings as well as optimising the efficiency of processes—a clear benefit for the bottom line as well as the carbon footprint.

Predictive maintenance and easy integration

Besides the air flow, the Air Management System can also monitor pressure and temperature, which lets operators precisely determine base parameters for machinery and equipment Over time, the high-definition data collected as a result creates a digital fingerprint of the optimum operating conditions. This also allows threshold values to be defined, which can be used to check the status of a plant and, if errors occur (e.g. due to leaks), maintenance measures can be planned or initiated. The comprehensive nature of the high-quality data also makes it possible to monitor the general status of the equipment. Potential failures are detected early on, giving operators the opportunity to respond quickly.

And the Air Management System is also easy to integrate, even in brownfield applications. In the wireless design, a master unit is physically connected to an industrial ethernet network and wirelessly connected to a remote unit. This does away with the need for time-consuming, space-hungry wiring, while the air piping is also not affected by the installation. The data transmission, which allows up to 10 wireless modules to be connected to a single Air Management System, is encrypted for secure transmission over a radius of 100 m. Communication with higher-level systems can either take place via the OPC UA open standard, which does not require a PLC, or the EtherNet/IP™ or PROFINET protocols. As an IO-Link master is integrated into all Air Management System, an additional IO-Link device can also be connected.

The comprehensive equipment, which includes protection class IP65 or IP67 depending on the type of regulator, gives operators from completely different categories of industry an optimum solution for their compressed air management in order to save energy, costs and, ultimately, CO_2. This is true no matter whether it is used in general manufacturing, the automotive, paper or food industries, or in machine tool manufacturing, electronics or life sciences.

Figure: The new SMC Air Management System in ¼ to 1-inch connection sizes comprised of a regulator, hub and shut-off valve offers potential savings in compressed air consumption of up to 62% thanks to the comprehensive monitoring of pressure, temperature and flow.

Photo: SMC Deutschland GmbH

For more information, visit the SMC website at **www.smc.de**