

# Integrated intelligence: Sigma Control 2

## Welcome to the future

**Kaeser Compressors' revolutionary modular concept takes compressor controller technology to the next level and beyond. Welcome to the world of Sigma Control 2.**

It's now more than a decade since the Coburg-based compressed air systems provider introduced its ground-breaking 'Sigma Control' internal compressor controller, the innovative "PC in a compressor." The integration of an industrial PC as standard in every compressor not only enabled cost-effective control, but also allowed networking capability between individual units and with master control systems. This breakthrough provided the keystone for today's integrated system approach to compressed air production by enabling continuous advances in energy performance and improved reliability of complex compressed air systems.

### **Enhanced communication and efficiency**

The core strengths of Kaeser's 'Sigma Control' compressor controller are its ability to optimise energy efficiency and to communicate seamlessly both internally with the compressor as well as externally with master control systems. Unsurprisingly therefore, Kaeser's development engineers also applied these outstanding features to the new generation Sigma Control 2, or SC2 as it is referred to more succinctly. However, wishing to make the Sigma Control 2 even more versatile than its predecessor, what Kaeser's engineers came up with for the SC2 was an innovative modular design that creates a "division of labour" between the main control unit and the separate input/output modules. As a result, this unique concept makes the SC2 even easier to maintain and to communicate with.

Sigma Control 2 is equipped with its own web server, which allows direct communication with the compressor via intranet/internet. So, within the scope of Kaeser's Teleservice facility for example, password-protected compressor settings and operational data can be called up and adjusted on any PC with an internet browser without the need for additional expensive software. Compressor operation and maintenance are therefore made even easier, as is regular monitoring of cost- and energy efficiency.

Sigma Control 2 communicates internally with the compressor via input/output modules that are tailored with differing inputs, outputs and floating contacts to meet the specific needs of the various compressor ranges. This future-proof concept therefore offers exceptional flexibility.

### **User-friendly and reliable operation**

It is not only the compressor that benefits from the SC2's fast and efficient communications, the user does too: The large operating panel is dominated by an LED-backlit, 256 x 128 pixel, greyscale LCD screen on which plain text messages can be easily read across eight 30-character lines. Nine LED indicators signal additional operational parameters and conditions, and 13 membrane keys labelled with easy to understand icons ensure unmistakable input of the various commands.

The operating panel communicates directly with the "main control system", the core of the Sigma Control 2. It comes with four interfaces for active and passive communication:

1. with the compressor (IO-BUS for up to six I/O modules)
2. with Sigma Frequency Control speed controllers. This feature enables the use of infinitely variable, frequency speed control not only for the compressor drive itself, but also for electric motors of fans
3. with the internet and/or computer networks (via the Ethernet interface, 10/100 MBit/s, RJ45)
4. with the user's various control systems via plug-in communication modules which are available for Profibus, Modbus, Profinet or Devicenet.

### **Cards and chips**

Seamless documentation of all operating conditions and parameters is essential to ensure optimum compressor performance at all times. This important task is facilitated by the memory feature included as standard with the SC2, data from which can be easily and quickly uploaded to a computer thanks to the addition of a SD card slot. The same slot also makes it possible to transfer and install software updates onto the SC2 using a pre-loaded SD card. As a result, updates can be carried out quickly and all operational settings are retained.

Sigma Control 2 provides high level security with its integrated RFID (Radio Frequency Identification) functionality. Not only does this technology ensure secure log-in for users and/or Kaeser service engineers, but also safeguards the system against unauthorised changes or operation. This security feature has been added to further standardise servicing in order to ensure high quality standards and to provide continuous quality assurance for service work.



Kaeser rotary screw compressors are already being equipped with the new Sigma Control 2 controller which will eventually become standard on all ranges.

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Approved for publication, copy acknowledgement appreciated

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Image:



Sigma Control 2, Kaeser's PC-based compressor controller, delivers energy efficiency, reliability, and standardised servicing; its modular design offers exceptional versatility and enhances communication.