

**KAESER**  
COMPRESSORS®

*Built for a lifetime.*



# Intelligent Controller

Sigma Control 2™

[kaeser.com](http://kaeser.com)

# Sigma Control 2™

## **The next dimension of compressed air control**

*Kaeser Compressors has revolutionized compressed air controls with the Sigma Control 2. With integration across Kaeser's extensive product range of rotary screw compressors, vacuum, screw blower, boosters, and integrated blower packages, this versatile control system enhances communications and energy efficiency without sacrificing ease of operation.*

### **Integrated Intelligence**

Sigma Control 2™ is our most advanced integrated controller, combining safe and efficient internal supervision with important information and maintenance friendly features. The operator interface offers easy access to all settings and information. This controller provides a broad range of capabilities while at the same time is simple and reliable.

### **Protection For Your Equipment**

Our control provides full time protection for the equipment. It monitors over 20 critical parameters including airtend discharge temperature, direction of rotation, motor temperature, internal pressure, electrical overload status, filter differential pressure, and auto drain status (if equipped). The controller safely shuts down the machine to avoid component damage. Sigma Control 2 also tracks service and load hours, which helps schedule routine maintenance and minimize downtime. It stores the alarm and operating history, aiding in faster trouble-shooting and reducing unscheduled downtime. The RFID feature provides secure access to the control menus, preventing unauthorized access and tampering.

### **Superior Energy Efficiency**

Two-unit lead/lag sequencer programming is standard in Sigma Control 2. This functionality equalizes runtimes, extends maintenance intervals and prevents unnecessary compressor starts. Further, it is pre-programmed with multiple user selectable control profiles (Quadro, Vario, Dual, Continuous, and Dynamic) to meet a wide variety of operating preferences. The precision electronic pressure sensor enables tighter switching differentials for further savings.

### **Flexible Communications**

More and more customers desire the ability to remotely monitor or control their compressed air systems. Whether you have a standalone system or want to make it part of your plant-wide controls, Sigma Control 2 was designed for maximum communication flexibility. Our built-in web server and Ethernet port (standard) let you view your equipment from any PC with a standard web browser. The open architecture makes it easy to integrate it into existing plant-wide monitoring systems utilizing optional communication adapters such as Modbus, Profibus, DeviceNet, and Profinet.



120 PSIG 09:26 185°F

**ON LOAD**

Key - on - Load

Run 18005h Load 17105h

Maintenance Inc 1995h

**KAESER**

RFID

**SIGMA CONTROL 2**



## Multiple Operating Profiles

Sigma Control 2 comes standard with pre-loaded control profiles. Select the one that best fits your operating needs:

- **Dual Control:** Operates the machine at full load and idle mode via minimum/maximum pressure settings and a timer. Pressure band and timer values are preset to match system requirements.
- **Quadro Control:** An improved version of Dual Control that includes an additional timer to effectively fine-tune the idle period and bypasses idle mode after periods of low air demand.
- **Vario Control:** Uses a smart timer to vary the idle time based on the frequency of motor starts, resulting in more energy savings.
- **Dynamic Control:** The machine will switch from load to stop at low motor temperature and to idle when the motor is hot. The control may bypass idle mode if the motor temperature is low and more starts are permissible.
- **Sigma / Omega Frequency Control:** The most advanced and energy-efficient type of control that varies output capacity according to system pressure requirements using a variable frequency drive system (if so equipped).
- **Modulation Control:** Regulates air delivery using proportional inlet valve to provide a constant output pressure (if so equipped).

## Security with RFID

Sigma Control 2 provides high level security with its integrated RFID (Radio Frequency Identification) key. This technology ensures secure log-in for users and service personnel so service work and system changes can be performed only by authorized and qualified personnel. This protects the equipment and your operations.



# Advanced Communications Capabilities

## Superior System Integration

Sigma Control 2 comes ready for external communication with utility management and central control systems. A built-in web server is accessible via the standard Ethernet port, making it possible to view operational parameters from any computer — via intranet or internet — with a standard web browser without any additional software. Optional cellular modem also available for remote access.

In addition, Profibus DP, Modbus RTU or TCP, DeviceNet, Profinet and other common industrial communication buses are available for integration into your centralized telemetry or plant monitoring system. Digital and analog inputs and outputs are available to monitor optional sensors and equipment or to send signals back to an alarm or telemetry system. To further enhance remote monitoring, email notifications of alarms and operational messages can be sent via an SMTP server.

## Upgrades and Data Storage

A convenient SD card slot (standard) with included SD card enables fast, easy software upgrades and storing key operational parameters. This feature minimizes service costs, provides system back up capability, and offers long-term data storage for trending and analysis purposes.

## Customer Network

You can view each machine through its **Ethernet** port and web server. Sigma Air Manager can also be viewed through its Ethernet port and web server or via Modbus or other industrial communications. Contact Kaeser for details.



## Kaeser Equipment



Sigma Air Manager 4.0 with Ethernet port and web server.



Each Sigma Control 2 has its own Ethernet port and web server.

# Features and Options

## Hardware

- Advanced processor hardware
- Backlit 255 X 128 pixel graphical display with 8 lines, 30 characters each
- 9 LED indicators and 13 tactile membrane keys
- Real-time clock with 10 year battery back-up
- Precision electronic pressure transducer
- RFID reader for touchless security
- All components designed for industrial operating conditions

## Data recording

- On-site diagnosis at a glance
- Graphical representation of equipment status



## Interfaces

- RJ45 10/100MB Ethernet
- I/O bus RS485 for communication with up to 6 input/output modules
- USS interface RS485 for communications with up to three frequency converters
- SD card slot for updates and data storage

## Optional interfaces

Plug in Profibus DP, Modbus RTU or TCP, DeviceNet, Profinet or other communication adapters



Optional Profibus adapter

## Control modes

Dual, Quadro, Vario, Continuous, and Dynamic (dependent on compressor size)

## Control cabinet

Dust and water-resistant, IP 54 compliant; input / output modules with color coded terminals for the signal sensor connection cable; terminal strips for additional floating contacts.

## Certifications



# Sigma Control 2 Interface

Sigma Control 2 features an easy to read plain-text display and durable input keys. All relevant information can be viewed by navigating the menu with a few simple key strokes, and you have 30 languages to choose from.

## Function keys and indicators



### ON key

Switches ON the machine in automatic, self control operation



### OFF key

Switches the machine OFF



### Idle key

Switches the machine from load to idle (and reverse)



### Load/Idle indicator

Green LED indicates whether the machine is loaded (making air) or idling



### Remote ON key and LED

Add function. Green LED indicates external control is enabled



### Timer ON/OFF Key

Switches the timer ON and OFF. Green LED indicates the timer mode is active



### Alarm Indicator

Red LED indicates the machine has shut down with an alarm



### Communication Fault Indicator

Red LED indicates faulty external communication



### Maintenance Indicator

Yellow LED indicates maintenance is due



### Main Power Indicator

Green LED indicates there is power to the machine (the control cabinet is energized)

## Navigation keys



### Scroll

Scrolls up and down, line by line. Scrolls right and left.



### Escape Key

Returns to the next higher menu level



### Enter/Return

Goes to next sub-menu down or accepts inputted value



### Acknowledge

Acknowledges alarms and, when permitted, resets the alarm memory



### Info

Access to additional information

# The world is our home

As one of the world's largest compressed air systems providers and compressor manufacturers, Kaeser Compressors is represented throughout the world by a comprehensive network of branches, subsidiary companies and factory trained partners.

With innovative products and services, Kaeser Compressors' experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency. Every Kaeser customer benefits from the decades of knowledge and experience gained from hundreds of thousands of installations worldwide and over ten thousand formal compressed air system audits.

These advantages, coupled with Kaeser's worldwide service organization, ensure that our compressed air products and systems deliver superior performance with maximum uptime.



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[www.kaeser.com](http://www.kaeser.com)

**Kaeser Compressors, Inc.**  
511 Sigma Drive  
Fredericksburg, VA 22408 USA  
Telephone: 540-898-5500  
Toll Free: 800-777-7873  
[info.usa@kaeser.com](mailto:info.usa@kaeser.com)

**Kaeser Compressors Canada Inc.**  
3760 La Verendrye Street  
Boisbriand, QC J7H 1R5 CANADA  
Telephone: (450) 971-1414  
Toll free: (800) 477-1416  
[info.canada@kaeser.com](mailto:info.canada@kaeser.com)

**Kaeser Compresores de México  
S de RL de CV**  
Calle 2 #123  
Parque Industrial Jurídica  
76100 Querétaro, Qro.  
Telephone: 01 (442) 218 64 48  
[sales.mexico@kaeser.com](mailto:sales.mexico@kaeser.com)

**Kaeser Compresores de  
Guatemala y Cia. Ltda.**  
Calz. Atanasio Tzul 21-00, zona 12  
El Cortijo II, Bodega 501  
01012-Guatemala City  
Telephone: +502 2412-6000  
[info.guatemala@kaeser.com](mailto:info.guatemala@kaeser.com)

