

# Compressed Air System Control



## SIGMA AIR MANAGER

For Sequencing and Monitoring 4 to 16 Compressors



# Complete System Management

## Sigma Air Manager

Modern compressed air systems have a variety of requirements. In addition to specific pressure, flow and air quality requirements, prime consideration must be given to system reliability and minimized energy consumption.

In systems with multiple compressors and a variety of clean air treatment equipment, a large portion of the energy savings can be obtained by optimizing each compressor's operational status and monitoring the function of the air treatment components.

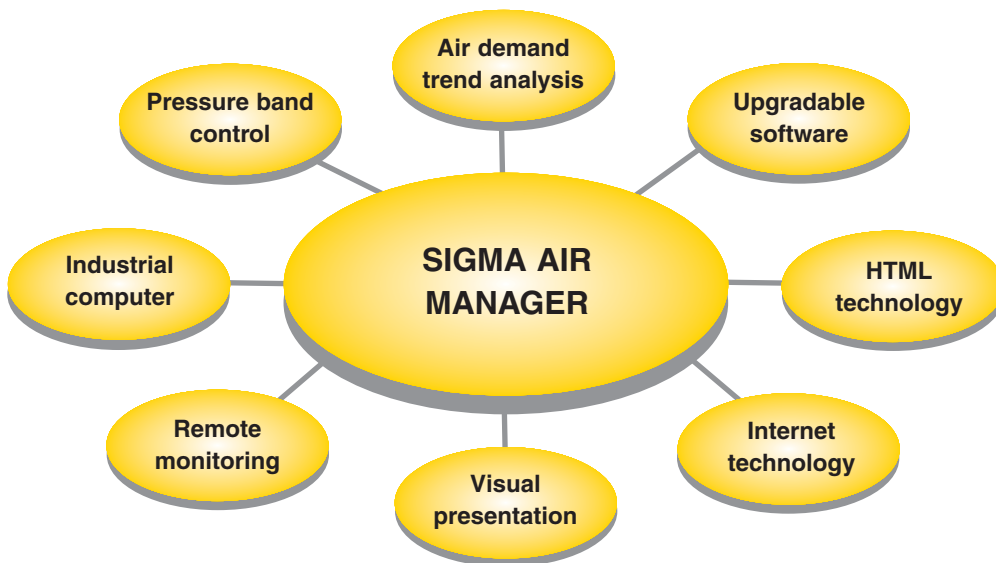
Sigma Air Manager has combined Kaeser's decades of compressed air expertise with the latest communication and information exchange technology. This new master air system controller provides a variety of tools to manage any system in real time.

Sigma Air Manager is the first master controller to combine the benefits of a modern industrial PC with Internet technology in a compressed air system.

Sigma Air Manager uniquely provides energy-saving, demand-related pressure band control with a clear visualization of operational data.

Sigma Air Manager safely controls and sequences an air system using the pressure band values, set point pressure, compressor grouping and compressor type.

Additional parameters can also be programmed to optimize compressor and overall system performance.



## Increased Reliability

Sigma Air Manager helps ensure a stable system pressure by bringing additional compressors on-line when demand increases. It prevents simultaneous loading, which reduces current spikes. If a compressor malfunctions, Sigma Air Manager automatically loads the next available compressor. The master air system controller also alternates base load and peak load compressors so that compressors accumulate equal service hours. All of these tools and features add up to increased system reliability and improved system performance.

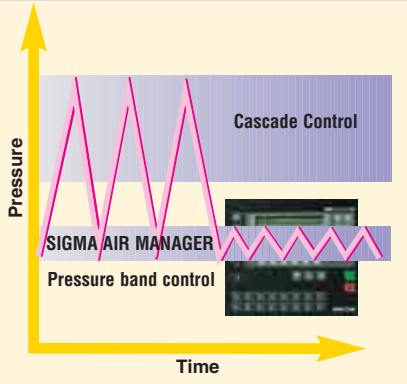


## User friendly

Sigma Air Manager features a simple menu structure with helpful icons and clear graphics. The key pad includes four cursor keys and six multi-function keys. Sigma Air Manager is also pre-programmed with up to 30 standard languages.

The master air system controller is fitted with a Profibus DP interface connecting the compressors with a single cable with Profibus DP plugs. Plus all Sigma Air Managers can be wall-mounted to maximize floor space.

# Technology for the Future



## Energy-saving pressure band control

A central pressure transducer is the best way to provide pressure band control for several sequenced compressors, while providing maximum energy savings. In contrast to the common cascade control or simple pressure bands, our pressure band control with integrated air demand trend analysis avoids unnecessarily high system pressure. Reducing system pressure by just 10 psig reduces total compressor power consumption by 5 percent.

The lower system pressure also eliminates approximately 10 percent of system leakage losses and artificial demand.

By optimizing the compressors' usage, application, and control systems, the Sigma Air Manager provides an *additional* 10 percent savings potential.



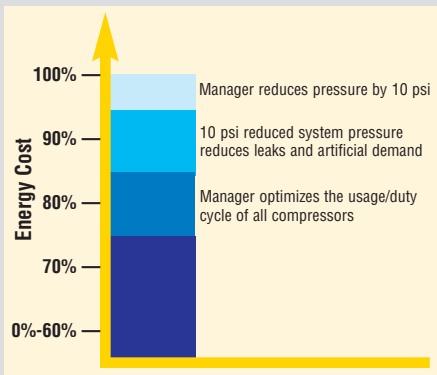
### **Sigma Air Control *basic* (standard)**

Sigma Air Manager features Sigma Air Control *basic*, a software program that displays a compressed air system's real-time operational status through a standard Internet browser. These HTML pages show the compressor's operational state, the Sigma Air Manager operating panel and system pressure trends during the last operation phase, as well as service and alarm messages.

### **Sigma Air Control *plus* (optional)**

The optional Sigma Air Control *plus* stores the operational data and makes it available for reporting, system audits, control optimization and long term trending. Password-protected access via a standard Internet browser shows graphic profiles of system pressure, system air delivery, compressor load/unload, duty cycle and power consumption of the compressors over a long period of time.

### **Potential savings for compressed air system**



### **Remote Access**

With Sigma Air Manager and its integrated Internet capabilities, air system data is available from any location. The remote monitoring capabilities of Sigma Air Manager also allow our experts to assist you and minimize troubleshooting time.

# Sigma Air Manager Master Controller

Sigma Air Manager is used to control and sequence up to 4, 8, or 16 compressors. It is more than just a simple base load sequencer. It is a complete system that acquires, visualizes, and correspondingly reacts to events occurring during air system operation.

With the Sigma Air Manager's unique intelligence and its Internet capabilities, the entire compressed air system can be operated and monitored from any location.



## Features and benefits:

Constant, optimum system pressure using pressure band control with a minimum switching differential of +/- 1.5 psi	Minimum switching differential eliminates unnecessary high system pressure - <b>power savings of 1% for every 2 psi</b>
Minimum wiring effort to compressors with Sigma Control by using Profibus-DP interfaces	Easy installation; existing compressors and peripherals are easily integrated - <b>low installation costs</b>
Continuously acquires pressure data via 0-20 mA analog input, monitors minimum pressure with alarm, 0-20 mA pressure signal output	Comprehensive information on system conditions, current system pressure, remote monitoring - <b>increased reliability</b>
Individual settings for up to 32 shifts per week	Fully automatic operation, easily adapted to operational conditions - <b>high flexibility</b>
Uniform compressor utilization within a group	Even service hours on equipment - <b>maintenance efforts can be coordinated</b>
Demand-driven control	Selects the correct compressor size based on actual air consumption - <b>saves energy</b>
Acquires operational status of each individual compressor: total hours, load hours, alarms and maintenance	Quickly processes and displays system's current operational state - <b>increased operational reliability</b>
Staggered compressor starting after standstill period or power failure	Minimized current peaks - <b>no overloading of your power supply</b> - <b>decreased electrical demand charges</b>
Comprehensive reliability and safety. Compressors can run independently	The air supply is secured even if power to the master controller is interrupted - <b>increased operational reliability</b>
Control panel with graphic display (240 x 128 pixels) and touch keys, up to 30 languages, plain text menus, programming with password protection	Simple operation, self-explanatory plain text menus. Protected against unauthorized access - <b>safe and easy program change at any time</b>
Sigma Air Control system data and information can be displayed with standard Internet browser (using Ethernet or RS 232 or optional modem)	Check air system's status from anywhere using the Internet, Intranet or computer modem - <b>remote access</b>
Automatic service messages; can be individually named and set as required	Custom messages for monitoring other equipment - <b>maintenance effort can be easily coordinated</b>
Alarm and operational messages with statistics function	Allows air system status review - <b>simplified servicing</b>

# Sigma Air Manager



Model	Pressure band control	Total controllable compressors <sup>1</sup>	Possible air system interconnection				Spare output signals		Spare input signals		Sigma Air Control with built-in Internet server		Communication interface			Dimensions W x H x D (in.)	Weight (lbs.)
			with Profibus DP		with dry contacts		Digital	Analog 0-20 mA	Digital 24V DC <sup>3</sup>	Analog 0-20 mA / PT 100	basic	plus	RS 232 <sup>4</sup>	Ethernet (for company network) <sup>5</sup>	Profibus DP (master) <sup>6</sup>		
			Comps with Sigma Control	Profibus converter <sup>2</sup>	Comps without Sigma Control (incl. other mfr.)	Max. no. external transducers for treatment components											
4/4	S	4	4	4	4 (DO)	3 (DI)	1 (DO) spdt	1 (AO)	1 (DI)	-	S	0	S	S	S	13½ x 19¾ x 7¾	33
8/4	S	8	8	4	4 (DO)	3 (DI)	1 (DO) spdt	1 (AO)	1 (DI)	-	S	0	S	S	S	13½ x 19¾ x 7¾	33
8/8	S	8	8	4	8 (DO + DI)	7 (DI)	8 (DO) spdt	1 (AO)	1 (DI)	1 / 2 (AI)	S	0	S	S	S	19¾ x 27½ x 9¾	88
16/8	S	16	16	4	8 (DO + DI)	31 (DI)	16 (DO) spdt	2 (AO)	1 (DI)	3 / 4 (AI)	S	0	S	S	S	31½ x 47¼ x 11¾	441

S = Standard  
 O = Optional, can be retrofitted  
 - = Not Applicable

DO = Digital Output  
 DI = Digital Input  
 spdt = Single Pole, Double Throw dry contacts

AO = Analog Output  
 AI = Analog Input

- 1) For example: Sigma Air Manager 8/4; total of 8 compressors, 6 with Sigma Control and 2 without Sigma Control (using dry contacts)
- 2) Possible Profibus converters are 8 DI, 32 DI, or 4 AI/4 AO
- 3) For example: Remote ON/OFF or Alarm Reset
- 4) RS 232 available for:
  - direct use of Sigma Air Control visualization on PC; maximum cable length 50 feet
  - connection to telephone network (optional modem kit for installation in Sigma Air Manager Control cabinet for world-wide use)
  - connection of an interface converter to RS 485; maximum cable length 3,000 feet
- 5) For visual presentation via Intranet/Internet and communication with control center systems
- 6) Connection of compressors with Sigma Control or Profibus converters

*Specifications are subject to change without notice.*



**Built for a lifetime.™**

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## The Air Systems Specialist

With over 85 years of experience, Kaeser is the air systems specialist. Our extensive 100,000 square foot facility allows us to provide unequalled product availability. With service centers nationwide and our 24-hour emergency parts guarantee, Kaeser customers can rely on the best after-sales support in the industry. Kaeser stands committed to providing the highest quality air system for your specific compressed air needs.