

Compressed Air System Control

SIGMA AIR MANAGER BASIC

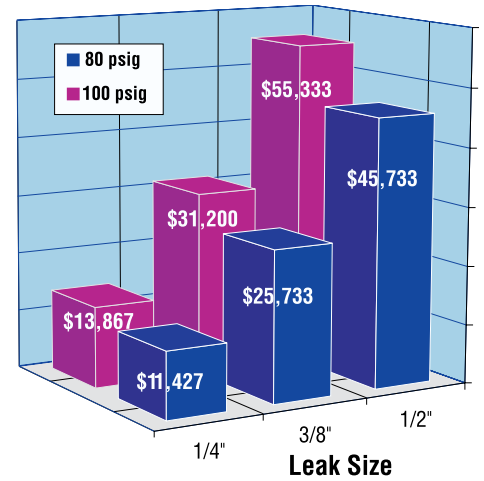


Why do you need a master controller?

Many users operate compressed air systems fed by two to four compressors. Too often these compressors operate on their individual control signals and are not well integrated into a system. The results are excess wear from too much valve cycling and too many motor starts, as well as fluctuating pressure at points of use. Further, energy is wasted by running more machines than necessary and at higher pressures than needed. The most efficient way to run compressors is to keep them fully loaded when needed and completely off when not needed.

Users obtain far superior results when they control all compressors (or vacuum pumps or blowers) from a single control signal with a means to turn compressors on only when needed. This can be done without compromising pressure stability or system reliability. Further, this frequently allows operating at lower pressures that significantly reduce energy costs associated with leaks and artificial demand. Finally, a well-designed master controller balances compressor load hours for more effective maintenance scheduling.

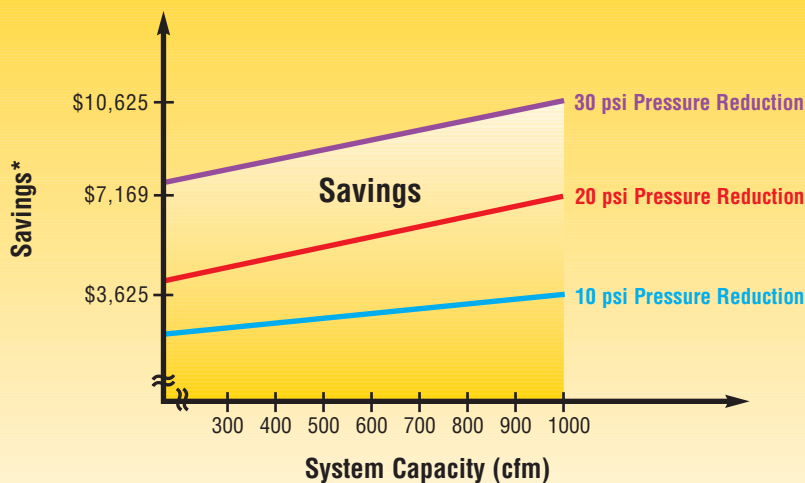
Leakage Costs



Actual cost based on 8500 hours and 8 cents/kWh

Air leaks represent a significant portion of compressed air costs. Plant audits show as much as 25% of compressed air produced is lost through leaks. Leakage costs decrease with reductions in system pressure.

Reducing the Cost of Leakage and Artificial Demand



* Actual savings based on 10 cents/kWh @ 8,500 operating hours

Energy-saving pressure band control

Fluctuating pressure due to inadequate system control leads many users to operate their compressors at higher pressures than needed to ensure adequate pressure downstream. This over-pressurization, also known as artificial demand, wastes energy.

Reducing system pressure by just 10 psig also reduces total compressor power consumption by nearly 5% (see chart at left). Lowering system pressure also eliminates leak losses. Any effort to ensure proper pressure setting and control quickly pays for itself in resulting energy savings. The larger the system the greater the savings.

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The energy saver



Energy-saving pressure-band control

Sigma Air Manager Basic provides tight pressure band control (± 1.5 psi) with a central pressure transducer so you can minimize energy wasted through over-pressurization, artificial demand and leakage.

EMC inspected

The Sigma Air Manager Basic design provides protection from electromagnetic fields that may be created by nearby electrical equipment. This ensures trouble-free operation even in industrial environments.

Simple operation



Logically structured menus in plain text and pre-assigned function keys simplify set-up. The easy-to-read graphic display with a resolution of 240 x 128 pixels includes 30 pre-programmed common languages.

Coordinated maintenance



Sigma Air Manager Basic aids your maintenance program by balancing running hours and by tracking the service intervals of all connected machines. It provides visual reminders when service is due.

Versatility



Sigma Air Manager Basic can control up to four machines configured for remote load/unload or start/stop control. This includes compressors, blowers and vacuum pumps made by Kaeser and other brands.

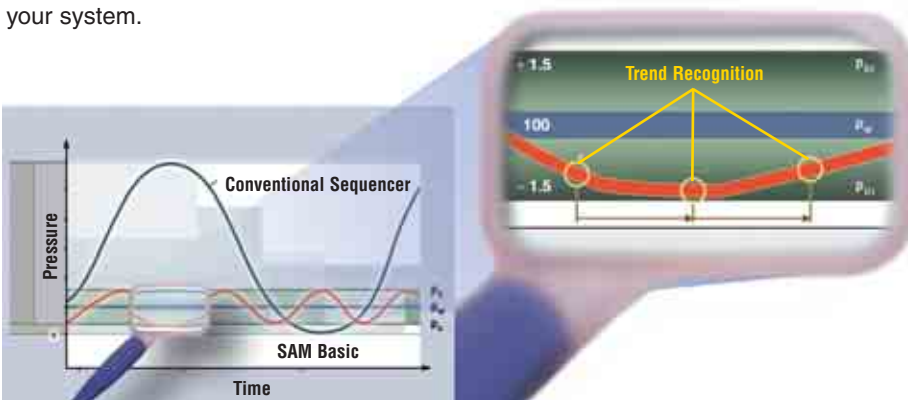
Reduce Energy Costs in Any System

SAM Basic can reduce the power consumption of any air system with up to four compressors regardless of whether the individual machines are equipped with a modern internal controller such as Kaeser's Sigma Control or Sigma Control Basic, or an older, conventional controller.

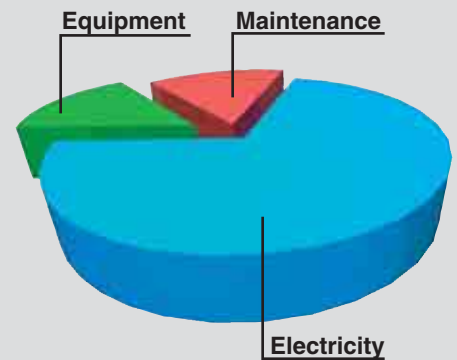
This makes the SAM Basic the ideal choice for modernizing small and medium size air systems. Simply applying precise pressure-band control can dramatically reduce power consumption without loss of performance.

Intelligent trend-recognition

Keeping the compressors working within a narrow pressure band (± 1.5 psi) and being able to recognize and accommodate demand trends is the ideal way to avoid unnecessary high operating pressure. Sigma Air Manager Basic's computing capacity enables it to recognize these trends in air demand and optimize system performance by avoiding unnecessary loading of additional compressors. A highly accurate pressure transducer with sensitivity down to 0.145 psi makes it possible to do this without compromising pressure stability or over-pressurizing your system.



SAM Basic controls pressure in a much tighter band than conventional sequencers.



70% of Your Long Term Compressor Cost is Electricity

Analyze the total cost of a compressed air system and you'll realize that power cost is significant. In just one year it could exceed the price of the compressor itself. Over a period of ten years, this could consume 70% of your overall air system costs. That's why it is important to investigate energy efficiency when considering a new compressor.

Save with SAM

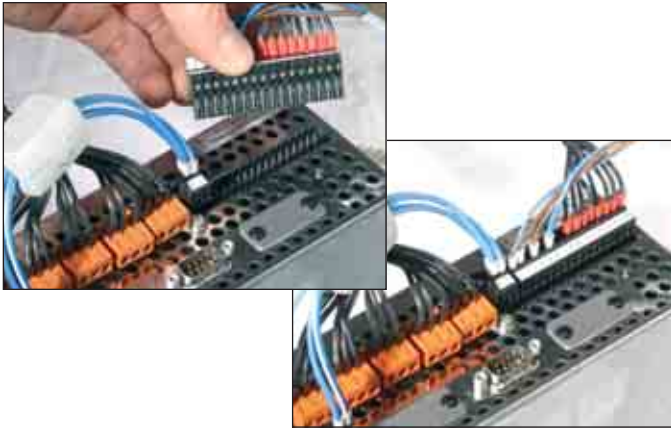
Installed Compressor Power (hp)	Typical Yearly Electrical Energy Costs*	Pressure Reduction (psi)	Potential Annual Energy Savings Based on the Following Operating Hours			
			2000 hr	4000 hr	6000 hr	8000 hr
50	\$35,349	10	\$ 1200	\$ 2400	\$ 3600	\$ 4800
		20	\$ 2400	\$ 4800	\$ 7200	\$ 9600
60	\$42,145	10	\$ 1400	\$ 2800	\$ 4300	\$ 5700
		20	\$ 2800	\$ 5700	\$ 8600	\$11,500
75	\$52,681	10	\$ 1800	\$ 3600	\$ 5400	\$ 7200
		20	\$ 3600	\$ 7200	\$10,800	\$14,400
100	\$70,241	10	\$ 2400	\$ 4800	\$ 7200	\$ 9600
		20	\$ 4800	\$ 9600	\$14,400	\$19,200
125	\$87,239	10	\$ 2900	\$ 5900	\$ 8900	\$11,900
		20	\$ 5900	\$11,900	\$17,900	\$23,900
150	\$104,687	10	\$ 3500	\$ 7100	\$10,700	\$14,300
		20	\$ 7100	\$14,300	\$21,500	\$28,600
200	\$138,253	10	\$ 4700	\$ 9400	\$14,200	\$18,900
		20	\$ 9400	\$18,900	\$28,400	\$37,800

* Based on 8760 hours of operation per year; \$0.10/kWh energy cost.

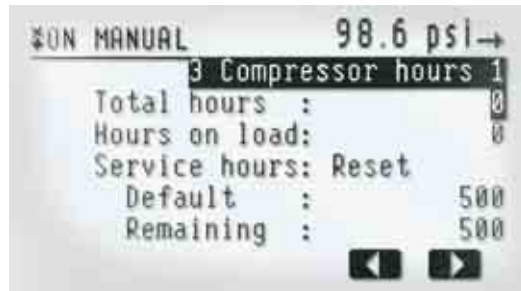
Linking compressors in five simple steps

Installing a Sigma Air Manager Basic to control a new air system or optimize an existing one is easy and inexpensive. Follow these easy steps and SAM Basic is ready to begin reducing your compressed air costs.

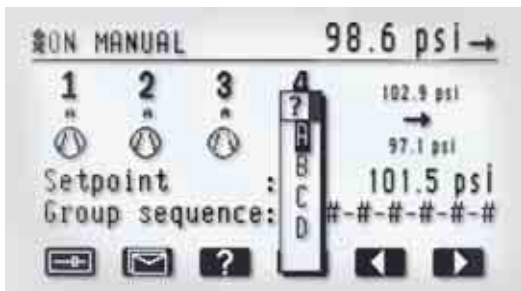
1. Connect the compressors to the SAM Basic



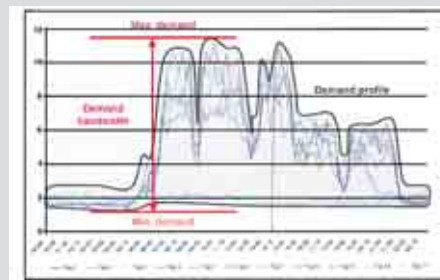
2. Enter the current operating hours of each compressor together with service interval information



3. Assign compressors to groups to meet the load profile

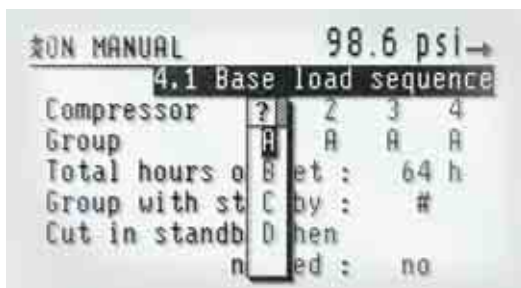


Use Air Demand Analysis to measure the actual air requirement



Load profiles are best determined by data logging your system in operation. Kaeser's Air Demand Analysis service provides the data needed for optimal compressor grouping.

4. Enter group sequences to meet the load profile




5. Select desired system pressure







Function keys in detail


Base Functions


 ON-key (green LED) switches the air system on.

 OFF-key switches the air system off.


Preselected Functions


 Switches the real-time clock feature on and off.


 Remote Control - enables remote start-stop operation.


 Individual compressor can be switched on and off, an important feature for service work.


Menu Functions

 Arrow keys move the display cursor to the required position to select items.

 Escape key switches the display to the next highest menu level or back to the main menu.

 Enter key saves changed parameters and exits the edit mode.

 Soft keys select the various functions indicated in each display.

 This key acknowledges messages and resets the message memory.

Technical Specifications for SAM Basic

Total controllable compressors		4
Compressors with remote load/unload		4 (Digital Output)
Maximum external inputs from treatment components¹		4 (Digital Input)
Spare output signals	Digital	1 set single pole, dry contacts
	Analog 0-20 mA	1 (Analog Output)
Spare input signals	Digital 24V DC^{1,2}	1 (Digital Input)
Dimensions (W x H x D) (in.)		15 x 20 x 9
Weight (lbs.)		33

1) Inputs are only available for clean air treatment, remote, service, warning or alarm messages if they were not used for compressor motor running feedback

2) For example: Remote ON/OFF

Specifications are subject to change without notice.



Kaeser's U.S. headquarters in Fredericksburg, Virginia

Mission Statement

We strive to earn our customer's trust by supplying high quality Kaeser air compressors, related compressed air equipment and premium blower systems. Our products are designed for reliable performance, easy maintenance, and energy efficiency. Prompt and dependable customer service, quality assurance, training, and engineering support contribute to the value our customers have come to expect from Kaeser. Our employees are committed to implementing and maintaining the highest standards of quality to merit customer satisfaction. We aim for excellence in everything we do.

Our engineers continue to refine manufacturing techniques and take full advantage of the newest machining innovations. Extensive commitment to research and development keeps our products on the leading edge of technology to benefit our customers.



Built for a lifetime.™

Corporate Headquarters:
P.O. Box 946
Fredericksburg, Virginia 22404
Phone 540-898-5500
Fax 540-898-5520
www.kaeser.com

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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 unequaled 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.

