

## SIGMA AIR MANAGER basic

For up to 4 compressors



# SIGMA AIR MANAGER basic – Maximum energy savings

## Why a master controller?

Modern compressed air systems demand reliability, availability and efficiency to ensure efficient production of compressed air in the correct quantity at the required quality.

Such systems often comprise several compressors and air treatment components, all of which have to operate in close co-ordination with one another to be able to take advantage of significant energy saving potential.

This applies to all compressor installations, large or small.

However, the level of co-ordination required by today's compressed air demands can no longer be fulfilled using conventional base-load sequencers. The solution lies with intelligent computer systems that are able to co-ordinate operation of the individual components and create a single cohesive system that delivers optimum energy efficiency.

Representing the very latest in master control technology therefore, the new SIGMA AIR MANAGER basic from KAESER provides cost-effective entry into the world of advanced compressed air management. A focus on the key compressed air principles of reliability and efficiency ensures maximum energy savings and system transparency.



## KAESER's Solution: 30 languages and pressure band control

Able to co-ordinate a compressed air system comprising up to four compressors, the Sigma Air Manager (SAM) basic uses an energy-saving pressure band control that enables maximum system pressure to be reduced. This not only helps to keep operating costs to a minimum, but also reduces air losses from leaks and benefits the environment as a result of lower energy consumption. Furthermore, the SAM basic can display information in any one of 30 selectable languages.



## User-friendly operation

Operation couldn't be simpler thanks to logically structured plain text menus and pre-assigned function keys. The easy to read 240 x 128 pixel resolution screen can display information in any one of 30 selectable languages, including Chinese and Japanese.



## EMC tested

The SIGMA AIR MANAGER basic is passively and actively tested for electromagnetic compatibility (EMC) and carries the VDE's (German Association of Electricians) EMC quality approval seal.



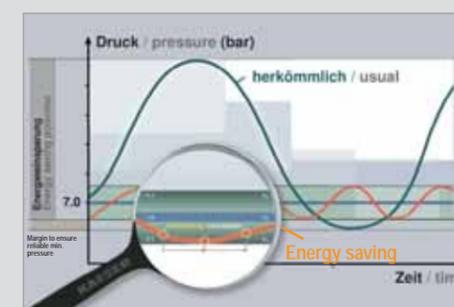
## Highly versatile

The 'SAM basic' can operate with virtually any compressor system, which means that older units can also benefit from the advantages that modern compressed air technology has to offer.



## Coordinated maintenance

As might be expected from an advanced master controller, the 'SAM basic' is able to co-ordinate when maintenance work is due for each unit within the compressed air system.



## Energy-saving pressure band control

Pressure band control with trend recognition and a very narrow control range avoids the unnecessarily high system pressures of many conventional systems and is ideal for efficient, reliable operation of multiple compressor installations. Often enabling a reduction in maximum system pressure, the SIGMA AIR MANAGER basic can help achieve considerable savings, as each 1 bar decrease potentially results in a 6% reduction in energy consumption and a 25% decrease in air leakage losses.

# Reducing energy consumption ...

... in every compressed air system

The SIGMA AIR MANAGER basic is able to significantly increase the efficiency of any compressed air system comprising up to four compressors, irrespective of whether it is equipped with advanced KAESER control systems (e.g. SIGMA CONTROL, SIGMA CONTROL basic) or not.

The 'SAM basic' is therefore the obvious choice when looking to optimise an existing compressed air system, as the pressure reductions achieved as a result of the narrow pressure band control help to considerably reduce power consumption both of small and mid-sized systems.



Note: The 'SAM basic' can also provide energy-saving control for reciprocating compressors.

## Intelligent trend-recognition for constant working pressure

The SIGMA AIR MANAGER basic's trend recognition feature is able to monitor upper and lower pressure bandwidth parameters and forecast compressed air demand. This prevents premature and unnecessary activation of additional compressors, thereby reducing energy consumption. Precision pressure measurement to within 0.01 bar ensures optimum system performance at all times.



## Examples:

### Example typical for the following parameters:

- Single-shift operation (2000 operating hours)
- Compressed air system comprising 3 compressors (1 x SM 8, 2 x ASK 32) with cascade pressure adjustment (1 bar)
- Pressure control with "SAM basic":  $\pm 0.1$  bar
- Possible pressure reduction (Pmin) in shift operation: 0.5 bar
- Previous total compressor loading: 75 % (without master control system)
- Energy price: 0.10€/kWh

#### 1. Precision pressure control saves energy

The Sigma Air Manager's precision pressure control system enables compressors to operate at a lower pressure than is possible with cascade control. savings of approximately 8% – in the quoted example that equates to € 560.

#### 2. Downstream pressure transducer

Energy consumption can be reduced by approximately 2% by locating the pressure sensor downstream from the air treatment equipment e.g. refrigeration dryers, filters etc. In our example this translates into a saving of approx. € 140.

#### 3. Pressure reduction

The compressors only compress to the pressure actually required. From experience this enables a further 5% reduction in energy consumption. In this example, this totals approximately € 350.

#### 4. Automatic shutdown of the compressors at night and at weekends

Using its programmable timer, the Sigma Air Manager automatically shuts down the compressors when compressed air production is not required e.g. after business hours and at weekends. By switching the compressors off, energy consumption is significantly reduced and losses due to air leakages are virtually eliminated. Air leakage rates often account for up to 20% of total compressed air consumption. In this particular example, the saving amounts to € 4740.

Of course the time-controlled shutdown feature is not relevant for compressor systems operating over two or three shifts. However, a reduction in system pressure is often advisable for such installations and this task can be carried out via the SAM basic's timer. This feature enables typical energy savings of approx. 8%.

€/Year

– 560  
Saving

– 140  
Saving

– 350  
Saving

– 4 740  
Saving

#### Rule of thumb:

A 1 bar reduction in pressure reduces energy costs by approx. 6% (excluding leakages). When also taking normal leakage rates into consideration, the actual energy saving is approx. 8%.

#### Total saving (for quoted example):

The Sigma Air Manager SAM 4/4 basic, for example, can pay for itself within a year. Over ten years, you can save tens of thousands of Euros in energy costs with a SAM basic!

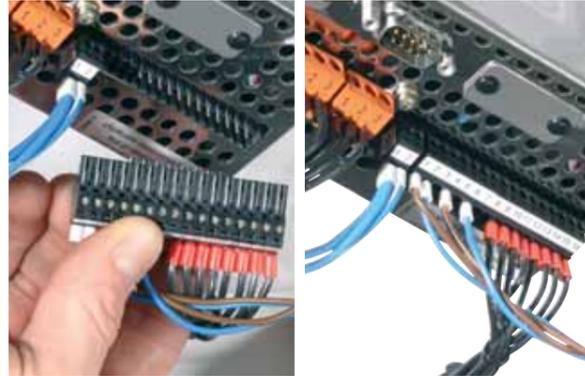
**5 790 €/Year**

Total saving

# Link compressors in five easy steps ...

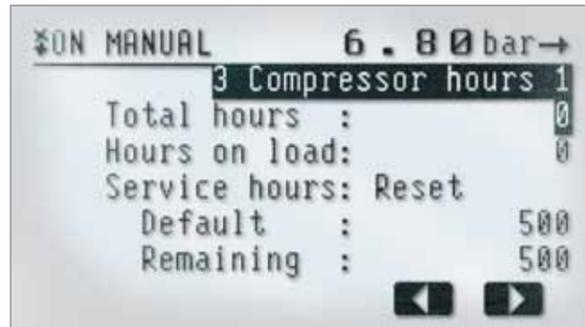
## 1. Connect the compressors

Two three-core cables are needed to connect each compressor to the SAM basic.



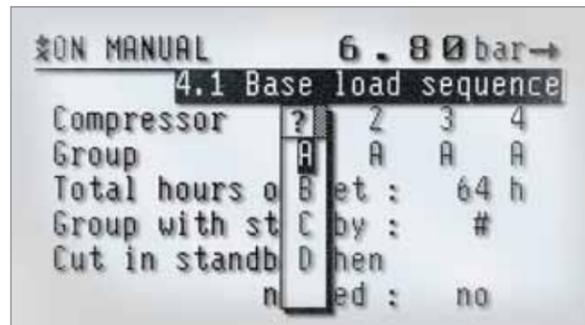
## 2. Input operating hours

Input service interval information and operating hours for each compressor into the SAM basic.



## 3. Enter allocations

Information for load allocation and grouping of each compressor is quick and easy to input.

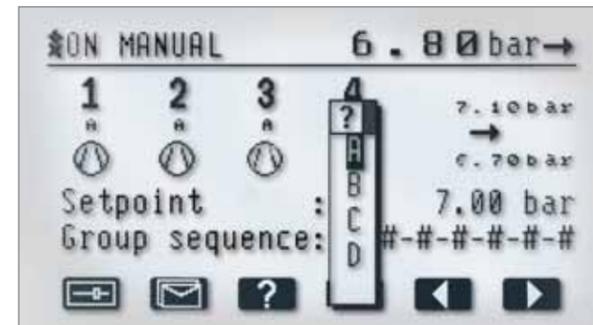


Whether equipping a new air system, or optimising an existing one, the SIGMA AIR MANAGER basic is simple to install and provides cost-effective control for up to 4 compressors.



## 4. Specify sequences

Sequences are entered and set in a few seconds.



## 5. Enter required working pressure

After inputting the required working pressure, the SAM basic is ready to begin reducing compressed air costs.



## The function keys in detail

### Basic functions

- ON-key (green LED)  
Switches the air system ON.
- OFF key  
Switches the air system OFF.

### Additional functions

- Switches the timer on or off.
- Remote control – Allows a control centre to link to the Sigma Air Manager.
- Individual compressors 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.
- The escape key switches the display to the next highest menu level or returns to the main menu.
- The enter key saves changed parameters and exits the edit mode.
- Selects the functions indicated in each display.
- Acknowledges messages and resets the message memory.

## SIGMA AIR MANAGER basic

Model	Pressure band control	Total controllable compressors	Available output signals		Available input signals Digital 24 V DC	Dimensions W x D x H	Weight kg
			Digital	Analogue 0-20 mA			
SAM BASIC	●	4x	1x (DO) Converter	4x (DO) Pre-assigned with compressor load	4x (DI)	380 x 500 x 220	15

● Standard, DO= Digital output, DI= Digital input, AO= Analogue output

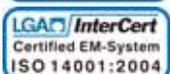


## Worldwide sales and service network: KAESER – Always there

With over 3000 employees worldwide, KAESER is one of the world's foremost compressor manufacturers and providers of compressed air systems. KAESER is represented in every major industrial nation throughout the world by 36 subsidiary companies and 22 authorised partners.



Algeria	Columbia	Greece	Korea				
Argentina	Costa Rica	Guatemala	Latvia				
Australia	Croatia	Honduras	Lithuania				
Austria	Cyprus	Hungary	Luxemburg				
Bangladesh	Czech Republic	Iceland	Malaysia				
Bahrain	Denmark	India	Mauritania				
Belarus	Ecuador	Indonesia	Mauritius	Peru	Saudi Arabia	Spain	Turkey
Belgium	Egypt	Ireland	Mexico	Philippines	Sweden	South Africa	Ukraine
Brazil	El Salvador	Italy	Morocco	Poland	Switzerland	Sri Lanka	United Kingdom
Bulgaria	Estonia	Japan	Norway	Portugal	Serbia and Montenegro	Taiwan	Uruguay
Canada	Finland	Jordan	Oman	Qatar	Singapore	Thailand	USA
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