



ENS-200

Energy saving trainer

Find out about the essential aspects of energy efficiency in compressed air installations



Save money



Put it into practice



Take care of the environment



Get training



Did you know that.....?

...90% of companies use compressed air

...on average, the energy cost makes up between 10% and 20% of industrial production costs

SMC research reveals that it is possible to save up to 40% of the energy used to generate compressed air.



Enter and find out how to do it





■ ENS-200 - Energy saving trainer

ENS-200 integrates a series of applications (vacuum, actuators and blowing) aimed at understanding and implementing the methodology associated with energy saving in compressed air installations.

ENS-200 teaches you how to detect possible excessive consumption and suggest actions to prevent it.

Users will analyse different scenarios through a series of guided activities. Each experiment shows how much has been saved, both as a percentage and in the chosen currency.



• SAI7002 ENS-200. Energy saving trainer

This equipment acts on the four fundamental pillars of energy saving in pneumatics:

• PRESSURE

Pneumatic components must be set to just the right pressure. Avoid excessive pressure as consumption is proportional to work pressure.

• SECTORISATION

To sectorise means to divide. It is possible to sectorise by differentiating between zones with different working pressure levels. It is also possible to sectorise by area, thereby minimising the impact of leaks when a zone is not active.



• MONITORING

Monitoring means to measure. Measuring makes it possible to locate defects in the facility and assess what can be saved by correcting them. Measuring can be done constantly or occasionally. Monitoring also leads to prevention, i.e. knowing when a part of the facility is beginning to consume more energy due to leaks or other faults.

• AIR QUALITY

A dirty filter generates a drop in pressure. If this filter is not replaced, the pressure must be raised to continue meeting system requirements. This poor practice has a negative impact on consumption which leads to more compressed air generation.

■ Main areas

ENS-200 includes the most common consumption sources for an automated process.

Anodised aluminium structure

Air treatment unit

Electric connection terminals

Vacuum area
ENS-200 includes venturi and multi-stage vacuum ejectors which can be used to check the impact of including high-performing elements in vacuum applications.

Labels for cables

Blowing area
ENS-200 includes two blower guns, built differently with varying efficiency, plus interchangeable nozzles that can be used to obtain comparative efficiency results.

Actuator area
It includes a standard cylinder and a high-performing cylinder, as well as valves and controllers which can simulate leaks or analyse the impact of an incorrectly dimensioned facility. Actions and strategies can, therefore, be devised from the results obtained.

HMI (Human Machine Interface) with a built-in PLC

Documentation:

- User manual.
- Practice manual.
- Theoretical course on pneumatics and energy saving concepts.
- Theoretical exercises based on a consumption calculation tool (included).



■ **ENS-200 - With this system you could...**

This trainer teaches you to come up with and implement energy efficiency solutions in compressed air facilities.

Working scenarios

PRESSURE

ENS-200 facilitates comparing the effect of adjusting the operating pressure to meet the facilities requirements using the following types of activities:

- Comparing different types of vacuum ejectors.
- Assessment of the impact of using excessively long pipes.
- Analysis of the impact of using double pressures.
- Adjustment of the network pressure to that required by each actuator.
- Comparison of various types of blow guns.
- Comparison of different various types of blow nozzle.
- Comparison of alternative various types of actuators.
- Analysis of the negative effects of excessive pressure on pneumatic facilities.



SECTORISATION

ENS-200 looks at the advantages of dividing the facility into different areas, thus favouring the implementation of the following activities:

- Quantifying the advantages of positioning pressure controllers in each area.
- Quantifying the effect of leaks on the consumption and sizing of the compressor.

MONITORING

Monitoring identifies potential savings and verifies their subsequent application. ENS-200 enables:

- Checking whether a machine's consumption falls within expected limits.
- Detecting and locating leaks in a system by sequentially checking areas or actuators.



eLEARNING-200

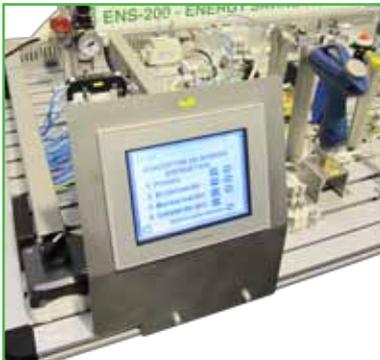
Find out more about the theory behind the technologies developed in ENS-200 with our eLEARNING-200 courses.

RELATED eLEARNING-200 COURSES

Principles of pneumatics (SMC-101)

**See eLEARNING-200 chapter for more information*

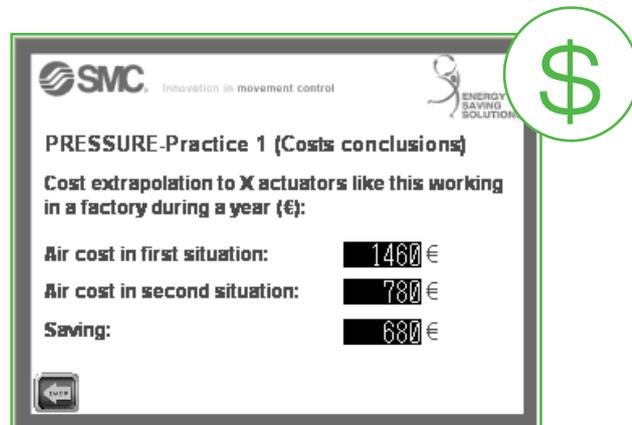
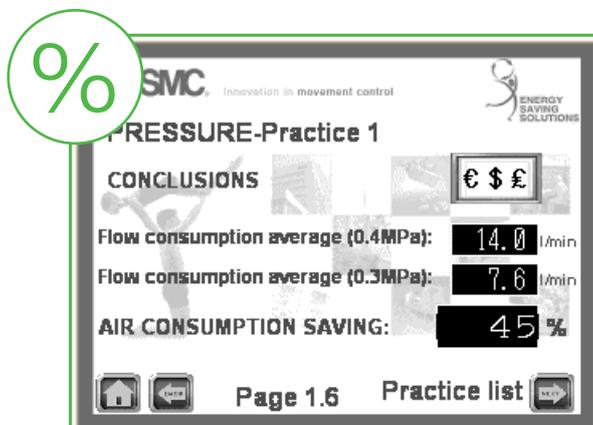
■ ENS-200 - How to use it



ENS-200 includes an HMI (Human Machine Interface) with a built-in PLC, interactive menus guide the user through the different activities.

The system sets up all of the parameters automatically for each exercise.

The results from measuring consumption and the savings obtained are presented as a percentage and in monetary savings.



■ ENS-200 - Technical features

ENS-200 1200x775x300mm	Modules	Sensors (type & qty.)	Input / Output
	Vacuum area Actuator area Blowing area Control area	Pressure switch (x2) Vacuum switch (x1) Flowmeter (x1) Load cell (x1)	Digital 6/13 Analog 4/0
	Actuators (type & quantity)	Other devices (quantity)	
	Pneumatic linear (x2) Blow gun (x2) Vacuum pad (x1) Venturi type vacuum ejector (x1) Multistage vacuum ejector with hysteresis function (x1)	2/2 cutoff valve (x1) Solenoid valve block (x3) Manual 5/2 valve with selector switch (x2) Pressure regulator with pressure gauge (x1) Bicolour pressure gauge (x2) Flow regulator - leakage simulator (x2) Pressure/Flow regulator (x2) OR flow control valve (x2) Blower nozzles (x5) Manual valve (x2) Power supply (x1)	

