

Air Control System AirCS® equipment set – Advanced level

Energy-efficient compressed air management



A view of the entire system

Before compressed air can be used it must be generated, purified, and distributed up to the respective application. Compressed air is a valuable form of energy. Nevertheless, too little is often done to lay out the overall system efficiently. Consumption is rarely measured or monitored. The cost situation is usually unclear.

This is where the Air Control System AirCS® comes in. The important aspects of making compressed air available and distributing it are examined within the framework of the AirCS® training project with regard to energy efficiency.

The AirCS® EduTrainer® serves as a basis to this end. It's incorporated between compressed air generation (compressor) and the process. In combination with FluidLab®-AirCS® software, integrated measuring technology allows for innovative condition monitoring for the measurement of compressed air and energy consumption.

Generation and load management

The index number of the connected compressor is ascertained under the Condition Monitoring menu item. Various compressors can be compared and changes can be detected at an early stage. A calculation tool assists the user in ascertaining overall variable and fixed costs for compressed air generation.

In the case of load management, energy consumption is visualized for the compressor and an additional consuming device. Pressure thresholds are specified for switching the compressor on and off. In consideration of peak loads, the fundamentals of load management can then be imparted and tested.

As a prerequisite for the use of AirCS®, a system must be available for measurement, for example the MPS® distributing station or the equipment set TP 201 (basic level electro-pneumatics).

Distribution and monitoring

Long-term monitoring makes it possible to visualize consumption for individual applications. This allows for well-founded statements regarding energy costs. Targeted and actual statuses can be compared, for example, in order to be able to detect and evaluate leaks.

Compressed air distribution components can be examined in the Flow Resistance menu. In this way, for example, the various resistances of different tubing lengths and diameters can be acquired and compared, as well as for T-connectors and elbow connectors. Furthermore, a calculation tool is available for determining the ideal pipe cross-section.

In the case of nominal flow measurement, a second, external pressure sensor can be used to ascertain the nominal flow rates of devices and components, in a manner similar to the ISO 6358 standard.

Special features of the AirCS® EduTrainer®

Pneumatic function area with:

- Flow sensor
- Pressure sensor
- Distributor block for QS-4/6/8
- Directly actuated 5/2-way solenoid valve
- Outlet with flow control valve and stop-cock

Electrical function area with:

- Energy consumption meter
- 2x 230/110 V AC outputs with control technology to switch the 230/110 V AC consuming devices
- SysLink and analog connection for EasyPort
- Connections for integrating the external sensor

Can be used for A4 mounting frame (399 x 297 mm) or as table stand.

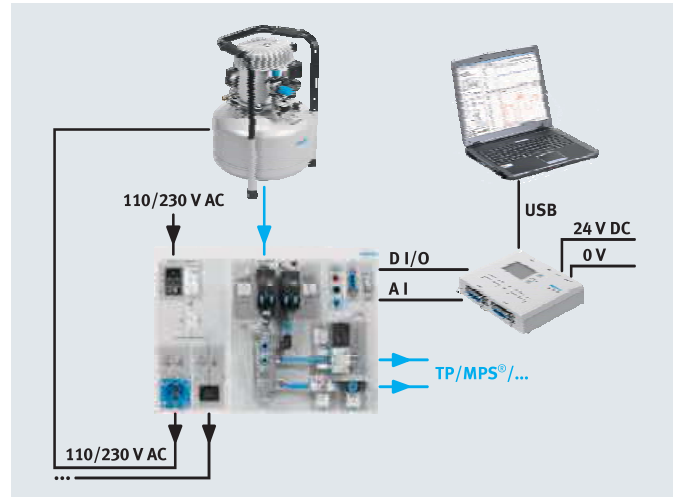
Complete equipment set AirCS**8023858**

The most important components at a glance:

1x AirCS EduTrainer	8023859
1x AirCS accessory kit	8023860
1x FluidLab-AirCS 1.0 single license	8023861
1x EasyPort USB	548687
1x Analog cable, parallel, 2 m	529141
1x I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
1x Pressure sensor with display	572745

Necessary accessories, also order:

Compressor → Page 136
Tabletop power supply unit → www.festo-didactic.com
Power supply unit for mounting frame → Page 159
4 mm Safety laboratory cables → Page 159

**FluidLab®-AirCS® included**

The FluidLab®-AirCS® software is an important component of the AirCS® equipment set. Just a few simple steps are needed to configure the interface and select the user language (German/English). Then the exercises can be started.

Exercises are supported by connection diagrams, descriptions, and sample solutions taken from the AirCS® workbook. The measurement process is software-controlled. Results can be measured with measuring points, printed out, or exported to a spreadsheet program. The software scope also includes the complete book of exercises in PDF format.

System requirements

- PC with Windows 7/8/10
- CD-ROM drive
- USB 2.0 or serial interface

AirCS® training documentation

The workbook in German and English constitutes the accompanying documentation for the AirCS® training project.

- The workbook contains:
- Definition of task
 - Sample solutions
 - Training notes

Up to two electric consuming devices (e.g. compressor and power supply unit) are needed to perform the load management exercises.

