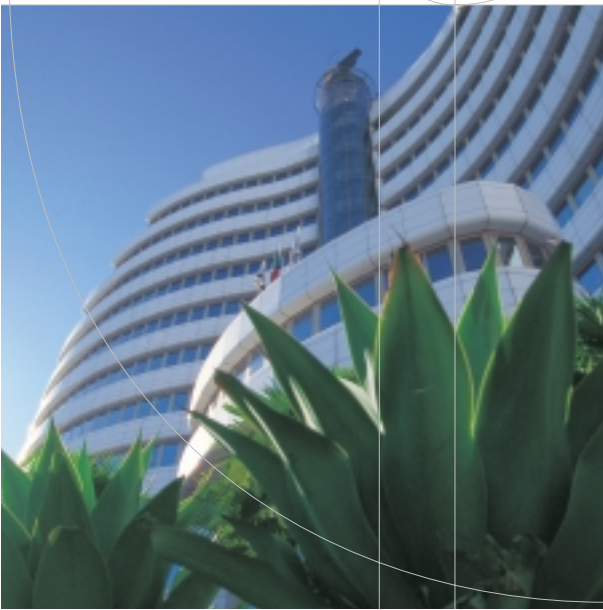


SIEMENS

HVAC Products

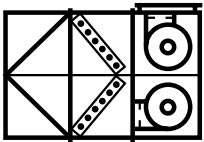
SAPHIR AirGo
OEM Air Handling
Unit Concept



SAPHIR AirGo

Control solutions

- Total solution competence
- Application know-how and flexibility
- Access to future-oriented technologies
- State-of-the-art and open communication



AirGo is an advanced, flexible and well-conceived OEM solution package in DDC technology that includes controllers, HMIs, service tools, sensors and controlling elements, affording optional plant integration into Building Management Systems (BMS). It considerably reduces the planning, installation and commissioning effort while advanced control functions ensure operating safety and optimize energy consumption. As a result, central air handling becomes more efficient and easier to operate.

SICLIMAT®-SAPHIR provides all required control and monitoring functions, thus creating the basis for a comfortable indoor climate. The broad choice of AirGo software applications is the result of close cooperation with OEMs, which gives full consideration to their specific needs.

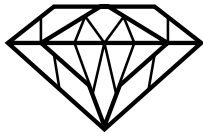
Hence, the applications provided have been developed specifically for temperature, humidity and pressure control and the convenient

operation of the different types of air handling units. Naturally, the use of mixing air dampers or heat recovery equipment for optimum energy consumption has also been taken into account.

Thanks to the SICLIMAT®-SAPHIR controller, the AirGo concept makes full use of leading edge Siemens technology, resulting in top quality and efficiency (control loop response < 100 ms), PLCs (Programmable Logic Controllers) and a future-oriented communication and integration platform.

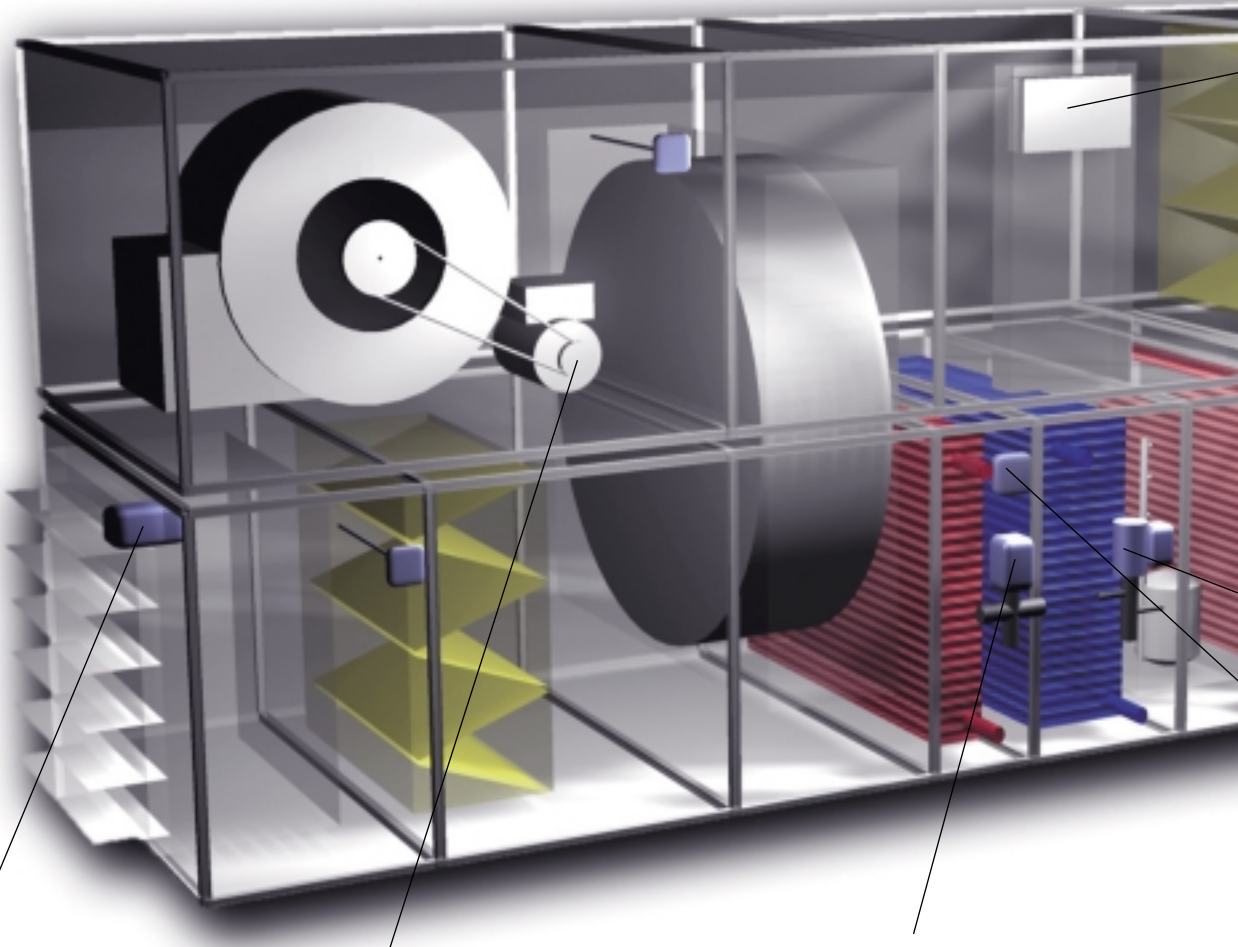
For optional integration into BMS, open communication standards such as EIB, BACnet / IP, TCP / IP and OPC are supported.

To take advantage of Internet technology, the communication module – which is based on the Windows CE operating system with its integrated WEB server – facilitates convenient data transmission via the World Wide Web (WWW).



SAPHIR AirGo

Total equipment solutions for OEM's



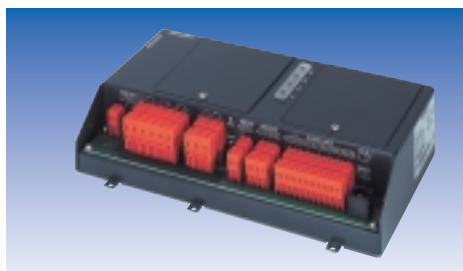
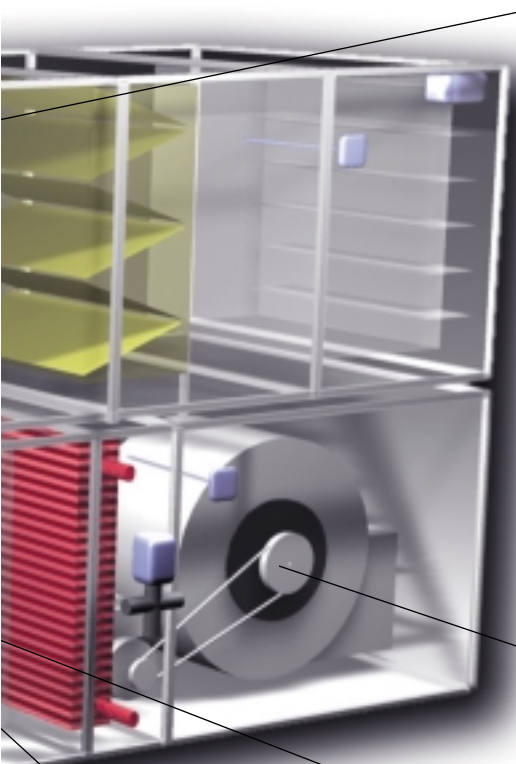
Siemens offers actuators for all sizes of dampers with torques ranging from 5 Nm to 35 Nm. Spring return versions reach torques of 7 Nm and 16 Nm respectively. The forces of the linear actuators cover the range from 125 N via 250 N to 440 N. All types of damper actuators use the DC 0... 10 V standard signal, but are also available as AC 230 V 2- (3-) position versions.



Siemens offers communicating HVAC frequency converters (FC) for external power control (0.37 to 90 kW) as well as FCs with integrated motors for fans and heat recovery wheels that are optimally matched to the SICLIMAT®-SAPHIR controller. They also feature a self-calibrating pressure sensor for control and filter supervision. Their power range reaches from AC 230 V, single-phase 0.5 kW, to AC 400 V, 3-phase, 5.5 kW.



Motoric valve actuators from Siemens are perfectly suited for standard control applications since they represent the common standard in the HVAC field. In the case of larger volumetric flows or high differential pressures, hydraulic actuators are the preferred choice. The modular design of both drive principles allows the actuators to be tailored to specific customer needs.



SICLIMAT®-SAPHIR gives consideration to the latest state of the art of DDC with control loop times of less than 100 ms, time switch programs, storage of historical data, etc., and the consistent use HVAC-oriented operating and programming systems. In addition to bus integration of our motors with frequency converters, optional modules facilitate manufacturer-independent integration into building automation systems or connection via Internet.



The HMI of SICLIMAT®-SAPHIR can be used as a handheld terminal, but can also be mounted in a control panel. It has a display with 4 lines each with 20 characters, which offers convenient and easy-to-understand operation with the menu and function buttons. An integrated red alarm LED instantly indicates operational faults.



Our market offering includes frost protection units for use on the air and water side. The range comprises not only on / off but also modulating versions. All types of frost protection circuits can be implemented in agreement with individual customer needs.



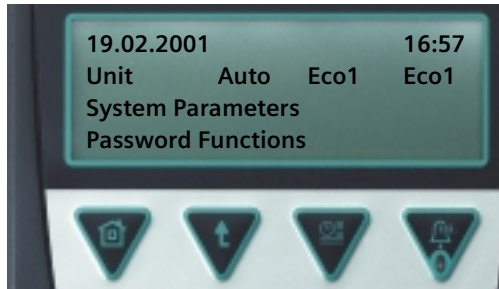
Siemens refrigeration valves with their magnetic actuators meet the most demanding control requirements. Positioning times of less than one second and optimum nominal sizes afford straightforward valve sizing for large capacity ranges. These benefits, together with standard interfaces, offer new choices in demand-dependent capacity control in refrigeration.



The comprehensive range of duct and room temperature sensors, combined temperature/humidity sensors and humidity, pressure and indoor air quality sensors from Siemens satisfies all HVAC needs. For applications with very tight tolerance bands as required in the chemical industry for example, or in cleanrooms or operating theatres, calibrated sensors with certificates conforming to ISO 9001 are available.

SAPHIR AirGo

Handling with the HMI



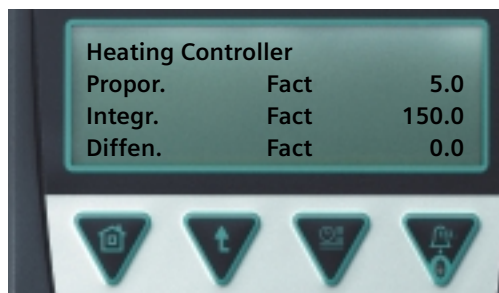
Information level

Here, in addition to general data such as time of day and date, current plant values and status are displayed.



Operation level

This level is intended for use by authorized persons (password-protected) to change plant setpoints, operating stages and time switch entries.



Commissioning level

This level is used for optimizing the selected plant application. Control parameters (gain, integral action time, etc.) and auxiliary functions are adapted or released here. This level can only be accessed via password.

SAPHIR AirGo

Integration, Communication and Service



Integration in BMS
Manufacturer-independent
through the use of open
standards such as EIB, OPC
and TCP / IP.

Management via Internet/
Intranet Module with inte-
grated WEB server on
Windows CE platform.

Service & commissioning
tool SACUS:
In addition to emulating the
HMI and configuring the com-
munication, loading, starting
and stopping the application,
an optional commissioning
report, as well as the possibility
of recording online trends
and editing archived data are
the key features of the tool.

SAPHIR AirGo

Overview of control applications

All AirGo applications are stored on a CD-ROM. The application matching the relevant plant constellation will be defined with the help of the Application Selection Matrix (ASM). The resulting code (letters AC plus a 3-digit code) corresponds to the

program to be loaded to the controller by means of the tool provided. Naturally, if quantities justify, this can also be done in the factory. The entire technical documentation consisting of Data Sheets, Function Descriptions and Operating Instructions is

also contained on the CD-ROM, plus a complete plant example for demonstration purposes.

Digit 1 Basic thermodynamic functions		Digit 2 Fan control				Digit 3 Auxiliary function		
		Single-speed fan	Two-speed fan	Pressure control with external frequency converter	Pressure control with internal frequency converter (bus)	No function or remote setpoint (Ni 1000)	Indoor air quality (DC 0-10V)	Heat recovery anti-icing protection (Ni 1000)
	1	1	2	3	4	1	2	3
Heating	1	•	•	•	•	•	•	•
Cooling	2	•	•	•	•	•	•	•
Heating + cooling	3	•	•	•	•	•	•	•
Heat recovery + heating	4	•	•	•	•	•	•	•
Heat recovery + heating + cooling	5	•	•	•	•	•	•	•
Heating + cooling + humidification	6	•	•	•	•	•	•	•
Heat recovery + heating + cooling + humidification	7	•	•	•	•	•	•	•
Heating + cooling + humidification/dehumidification + reheating*	8	•	•	•	•	•	•	•

*with the ACBxx applications, the setpoint positioning input is **always** used by the temperature sensor of the reheater!

Application Selection Matrix (ASM) for ACX60.AIRGO

The application code consists of 5 characters (2 letters and 3 digits).

The 2 letters always read **AC** (for **Air Conditioning**). Digits 1 to 3 are to be taken from the following matrix:

Important:
Indoor air quality control requires a fan with at least 2 speeds. For this reason, application selections ending with **AC x12** are not supported!

Selection example:

... with thermal wheel, hot water air heating coil, chilled water air cooling coil, with modulating anti-icing protection, Economizer operation and outside temperature-dependent setpoint, 2-speed fans...

Heat recovery + heating + cooling	5	1	2	3	4	1	2	3
		•						•

Resulting application code: AC 5 2 3

Ordering:
The AirGo control package with SICLIMAT®-SAPHIR controller (ACX60.AIRGO), HMI (ACX80.910 / ALG) and terminal set (ACX90.1/ALG) can only be ordered as complete sets using type reference

ACP20.AIRGO. Each package contains 6 sets. The CD-ROM (ACX91.2/AIRGO) can be supplied on request.

Siemens Building Technologies

Gubelstraße 22

CH-6301 Zug

Tel. +41 41-724 24 24

Fax +41 41-724 35 22

www.landisstaefa.com

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