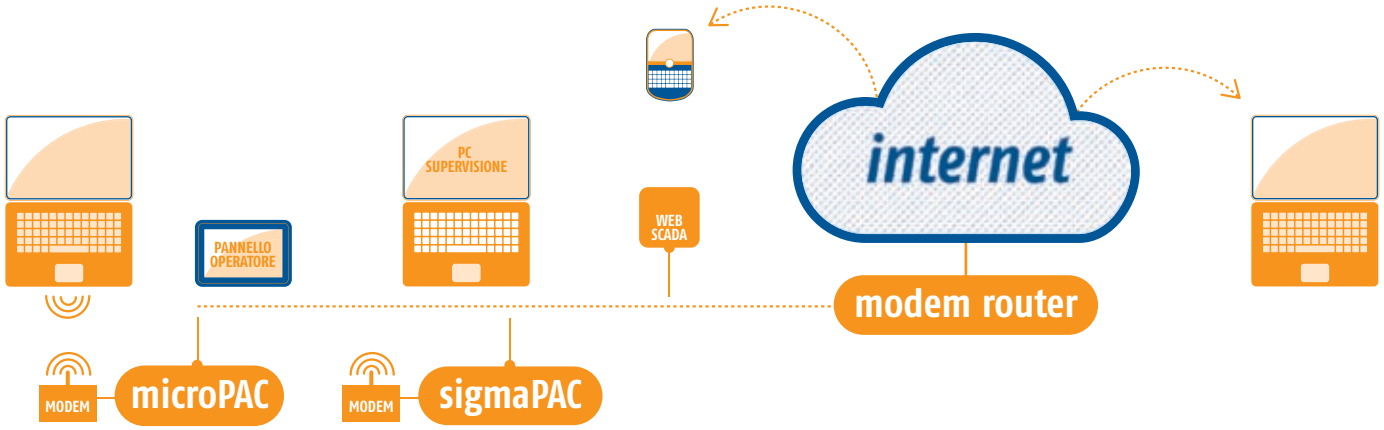
ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

sigmaPAC – microPAC – M81

Powerful and *flexible solutions*



THE CONTROLLERS

To manage regulation, monitoring, remote control and other functions of systems and machines, three programmable systems are available:

sigmaPAC: a programmable distributed control system, without limits on capacity and expandability, recommended for the flexible management of large and/or complex systems.

microPAC: compact programmable controller, suitable for industrial control applications with accurate and precise adjustments of machines and plants of limited size.

M81: the compact programmable controller for OEM applications with extensive data logging capacity on USB devices. Case, dimensions and channel type were designed specifically to fit into residential-type electrical switchboards and to permit simple and rapid cabling of field signals.

The programming is compliant with the IEC-61131-3 standard. Six programming languages are available along with a well-stocked library of function blocks dedicated to automation and specific process monitoring for systems and machines.

OPEN ARCHITECTURE

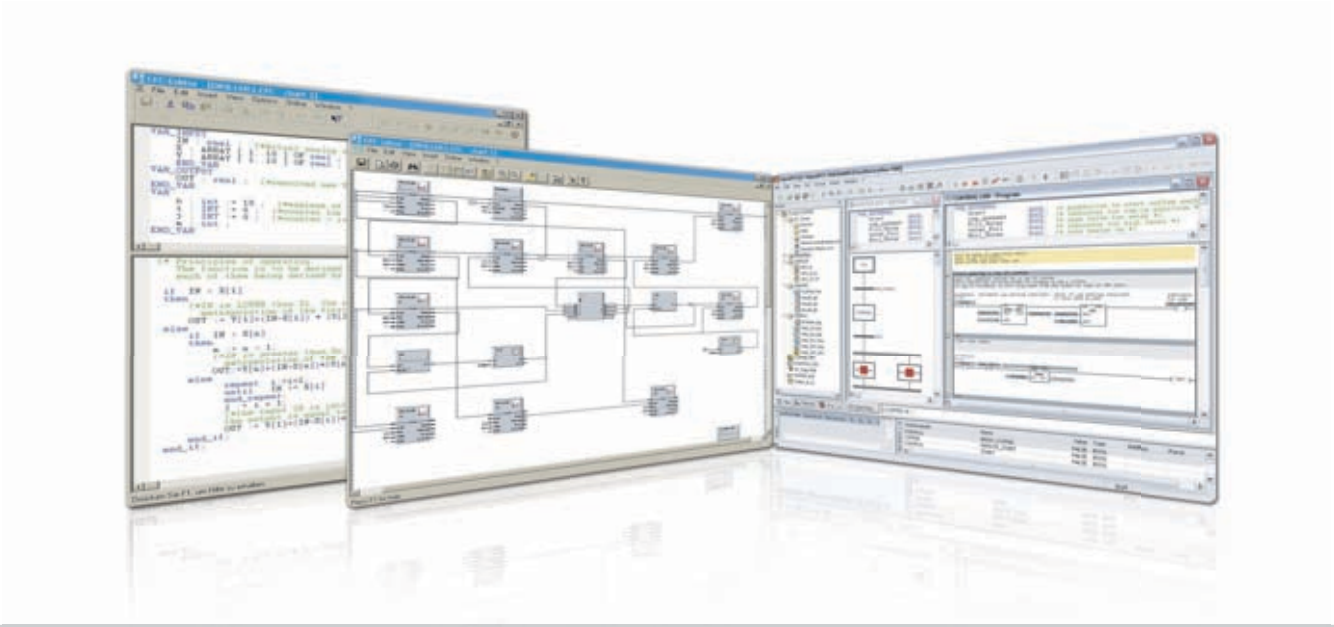
With ***sigma*** systems it is possible to implement different control architectures and diversify the operator interface with touch screen panels and PCs with supervisor software.

Remote communication can be implemented using a GSM/GPRS modem or via modem/router for access from outside; it is also possible to connect the systems using the latest-generation smartphones and tablets.

The solution is scalable, modular and customizable: it can be taylored to the system dimensions and can be expanded, even at a later stage.

The communication buses available (Modbus RTU, Modbus TCP, CANopen, Profibus DP, BACnet, M-Bus) simplify the integration of the ***sigmadue*** solutions to the pre-existing systems.

Programming makes it possible to customize the systems monitoring: management of alarms, programming of times, customizable event, sequences and logics registration, and regulation of the process magnitude.



openPCS PROGRAMMING SUITE

The **OpenPCS** programming environment is compliant with the **IEC 61131-3** international standard and allows the user to create automation projects while indiscriminately and simultaneously using one or more of the 6 languages available:

- **Instruction List**
- **Structured Text**
- **Sequential Function Chart**
- **Function Block Diagram**
- **Ladder Diagram**
- **Continuous Function Chart.**

This environment permits the creation of **multitasking** programs and allows the project to be divided into differentiated tasks that are executed sequentially or associated with a time cycle.

Management of the project is simplified by the possibility of integrating documentation files of various formats in the appropriate folder in the Project-browser.

OpenPCS integrates a wide range of libraries to simplify the programmers job:

- ***Ascon ACLib***: complete with advanced calculation and process functions such as Alarms, Medias, Characterizations, A/D Conversions, Selectors, Dew points, Relative Humidity, Reduction of bacterial load (Fo), Compensated Flow, Totalizers, Limiters, and Linearization,
- ***AsconBasic IOLib***: specification for the configuration and management of the I/O modules,
- ***Ascon ControlLib***: inclusive of all advanced PID functions for process control such as single or double action Regulators, complete with various Auto-Tuning and Feed Forward mode,
- ***AsconCPULib***: for managing all communication and diagnostic activities of the modules and the on-board I/O,
- ***AsconMBCommLib***: complete with all the function blocks for managing communication activities through the Modbus Master/Slave and Profibus agents and the use of Modems,
- ***AsconFirmwareLib***: inclusive of the PID base function blocks, the memory area copy functions, data conversion and diagnostics.

COMPACT PROGRAMMABLE CONTROLLER

microPAC is a compact controller with a CPU module with on-board I/O. The capability to add one or two expansion modules is available. It is also possible to increase the I/Os further by adding expansion modules from the sigmaIO Modbus series. There is an Ethernet port and two Modbus RTU and ASCII serial ports on board.

There are two models of the controller with different I/O configurations: MP01 and M81. The two models differ in the type of I/O channel and in their form factor: MP01 has typically industrial characteristics (inputs for thermocouples, PT100 and insulation) whereas M81 was designed to meet all the requirements of residential applications.

The programmable microPAC solution allows the local management of around a approximately a hundred digital and analog signals. It is suitable for small/ medium applications or for applications in which the intelligence must also be distributed.

It is possible to use a standard field bus on serial or Ethernet to synchronize the control units to each other or simply exchange data.

microPAC MP01
2 universal analog inputs (PT100, Tc, mV, mA, V)
6 analog inputs (4/20 mA, 0/10 V)
8 digital inputs (24 V)
2 or 4 analog outputs (mA, V)
2 or 4 analog outputs (mA, V)
Ethernet (Conf. + Progr. + Modbus TCP server)
RS232/485 + RS485 (Modbus RTU Master/Slave + ASCII)
Power supply 24 Vac

microPAC M81
8 analog inputs (NTC and Pt1000)
4 analog inputs (0... 4/20 mA, 0... 5/10 V)
12 digital inputs (voltage-free contacts)
4 analog outputs (0/10 V)
10 digital relay outputs (2xSPDT and 8xSPST-NO 5 A)
Ethernet (Conf. + Progr. + Modbus TCP server)
RS232/485 + RS485 (Modbus RTU Master/Slave + ASCII)
1 USB port for data logging and configuration
Real Time Clock
Power supply 24 Vac/dc

MP-DX Expansion Modules
8/16 digital inputs (24 V)
8/16 digital outputs (24 V 0.5A or Relay)

sigmaPAC DISTRIBUTED CONTROL SYSTEM

sigmaPAC is a modular and open programmable distributed controller. It is based on a CanOpen network connected to the CU-02 control unit, the heart of the system, and the I/O modules of the ***sigmaIO*** series, which can also be installed remotely from the control unit. The CU-02 control unit is programmed to manage the regulation, monitoring and remote control of the systems.

On-board interface of the control unit:

- 1 CanOpen port
- 1 Ethernet port
- 2 RS232 ports Modbus RTU Master/Slave and ASCII
- 1 RS485 port Modbus RTU Master/Slave and ASCII
- 1 free general purpose digital input
- 2 digital outputs for the alarm, Watchdog and WakeUp functions
- 1 Profibus DP slave port (optional).

Digital Modules	Functions							
Models	Channels		Type	Counter	Edge	Latch	PWM	Pulse
	I	O						
DI-16LV	16		24 Vdc		•	•		
DI-32LV	32		24 Vdc		•	•		
DO-16TS		16	24 Vdc, 0.5 A					•
DO-16TP		16	24 Vdc, 2 A					•
DO-32TS		32	24 Vdc, 0.5 A					•
DO-04RL		4	Relay, 250 Vac, 2 A					•
DO-08RL		8	Relay, 250 Vac, 2 A					•
DM-08TS	8		24 Vdc; 24 Vdc, 0.5 A	•	•	•	•	•
DM-16TS	8		24 Vdc; 24 Vdc, 0.5 A		•	•		
DM-32TS	16		24 Vdc; 24 Vdc, 0.5 A		•	•		
DO-04TX		4	24 Vdc; 6 A					•

Analog Modules	Ch.	Input	Output
Models			
AI_02UI	2	Universal RTD, TC, mA, mV, V, Potentiometer	
AI_08TC	8	TC, mV	
AI_04RT	4	RTD, TC, mV	
AI_08HL	8	mA, V	
AI_08DP	8	mA, V Double polarity	
Ao_08HL	8		mA, V
Ao_08DP	8		mA, V Double polarity

AUTOLINK SUPERVISION

Provides simple and complete monitoring and remote-management software in the Windows environment, that allows all systems to be monitored with the ability to intervene remotely at any moment to modify working parameters.

Using standard SCADA functions it is possible to customize synoptic diagrams of the system, management of events and alarms, multiple-trace, actual and historical trends, zoom and scrolling on time axis, maintenance, for read and modify operating parameters (times, temperatures, curves, etc.), read external tools (calorie counters, etc.) and generate periodic reports.

The client server architecture allows the creation of a network of supervisors that can share and duplicate the database.

The software allows the user to open several display windows at the same time

ACCESSORIES

- **Touch screen Operator Panels** have high resolution color graphics for displaying complete system data. The panels can be programmed and are typically configured to display pages for tests, trends (showing progress of temperature and operating parameters), alarms, digital and analog output command, time and date configuration, limit parameters and regulation parameters, counters and telephone numbers.
  The Operator Panels are available in various sizes from 4.3" to 12".
- Industrial **Ethernet Switches** with a redundant power supply for connecting to the operator panels and to the monitoring PC.
- **Pt100, Pt1000 or NTC-type Temperature probes.** Temperature transmitters are available with 4/20mA output for head mounting or on the DIN rail.
- **WebSCADA DY Module** for monitoring the system data via Web – a valid alternative to Autolink for managing unsupervised sites.
- **GSM/GPRS Modem** for remote connection allowing monitoring and remote management.
- **Assorted accessories** include regulated power supplies (24V – 32A and 5A), supporting terminal blocks (that can be plugged into the controller), expansion modules to facilitate cabling, plugs with screw or spring connectors and connection cables.

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