

AC³nP
The **system,**
as **you** like



AC³nP

MULTIFUNCTION PROGRAMMABLE CONTROL SYSTEM

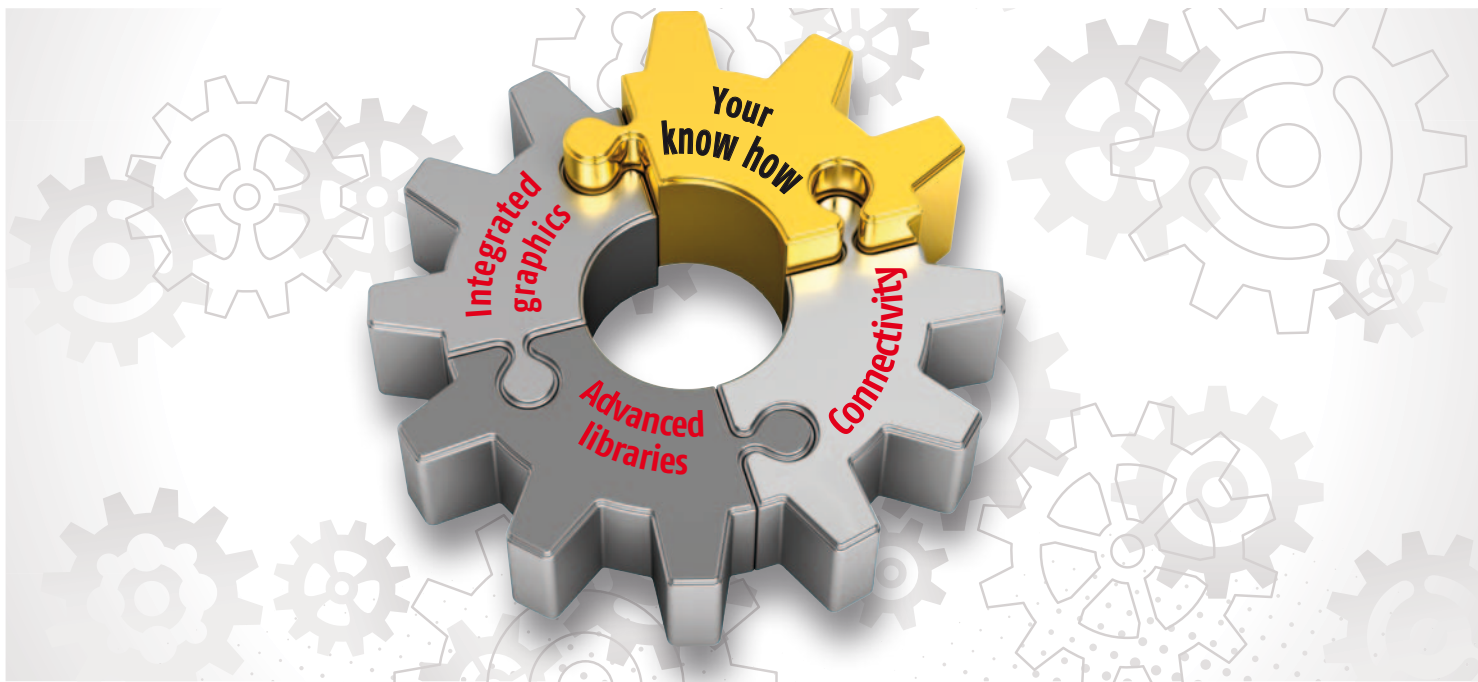
MULTI LOOP PROCESS DATA LOGGER BY MEANS WEB SERVER

- **Pre-programmed HMI;**
- **3 installation modes** (compact, split, remote);
- PID with autotuning;
- Trend functions;
- Customized logic functions.

FLEXIBLE AND CUSTOMIZABLE BUILD-UP YOUR OWN CONTROL SOLUTION

APPLICATIONS

- INDUSTRIAL KILNS
- AUTOCLAVES
- STEAM GENERATORS
- COLD STORAGE ROOMS FOR FRUITS AND VEGETABLES
- SPRAYBOOTHS
- CLIMATIC CHAMBERS



**CUSTOMIZABLE SYSTEM ...
TO BE DIFFERENT FROM THE CROWD ...**

AC³nP is a multiloop process controller, with adjustable operator interface and functionalities, to suit different needs:

- ◆ Custom Logo;
- ◆ Free pages selection;
- ◆ Compact, split or remote versions;
- ◆ Expandable.

Create **YOUR** tailored controller for **YOUR** application ...
... be different!

**... TO RESET THE DEVELOPMENT TIME
FOR THE USER INTERFACE ...**

No HMI programming is required. Thanks to a dedicated Function Blocks graphic pages library, it is possible to design, in a flexible manner, the operator interface and manage the variables to be displayed.

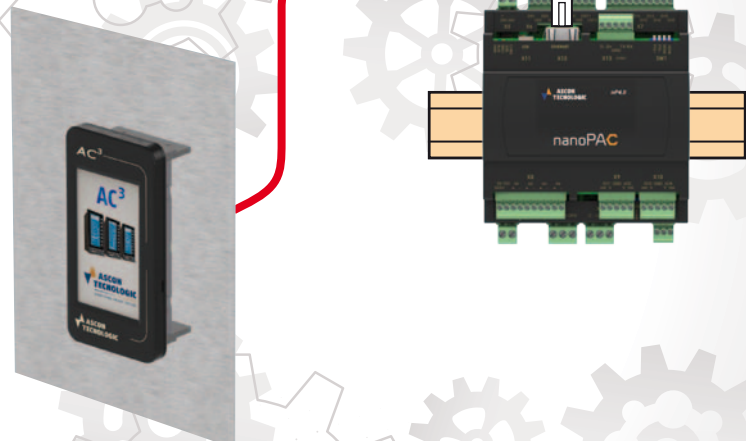
Create in a simple and intuitive way a solution, unique and "tailor-made" for your customer.



COMPACT



SPLIT



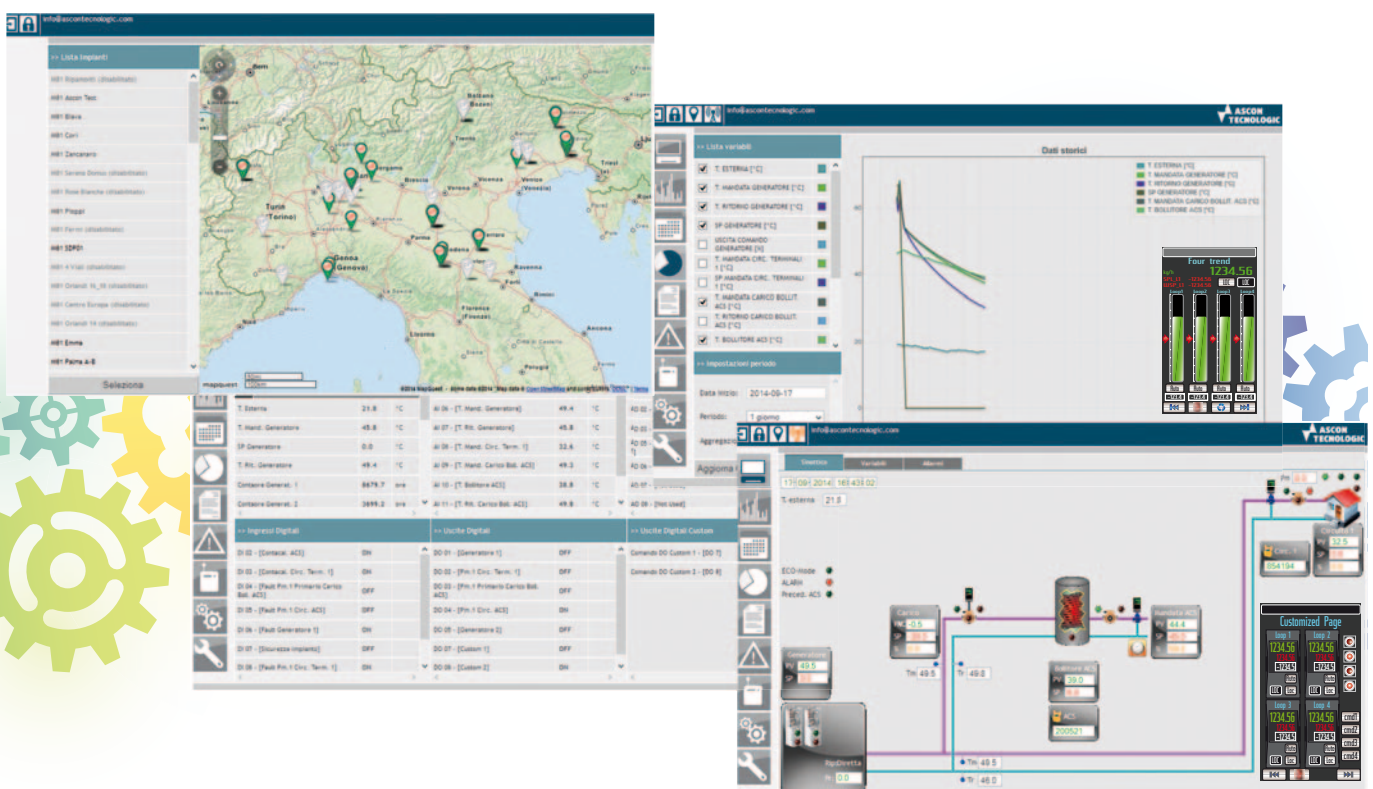
... TO BE INSTALLED AS YOU LIKE ...

- ◆ Compact mode: ideal replacement for AC Station front panel installations and, in general, for 72 x 144 mm process controllers;
- ◆ Split mode: typical front and rear panel mounting solution where controller and I/Os are DIN rail mounted, while display is mounted on the cabinet front;
- ◆ Remote mode: Ethernet communication allows to install the display panel far from the controller CPU.

... AND TO BE REMOTELY CONTROLLED

Via Internet, it is now possible to monitor and control remotely all your plants, wherever you are.

Thanks to an ethernet connection, remote environment programming and supervision can be easily done. A web platform allows you to access all your facilities, in a simple and safe way, to monitor and modify the operating parameters (an UMTS modem-router is required). A cutting-edge service to offer to your customers.



INTEGRATED OPERATOR INTERFACE

- ◆ The Operator interface is customizable by selecting specific function blocks from the dedicated library (trends, bar graphs, alarms, values list, etc.) and connecting to them the signals to be displayed;
- ◆ Screen texts are customizable;
- ◆ On request the Custom page, available from the specific library, can be customized according to user's needs;
- ◆ Web server on Po4 operator panel grants remote interface management via Ethernet.



PLC PROGRAMMING, OPEN AND STANDARD

- ◆ Programming is based on the 5 languages, compliant to IEC61131-3 standards. This allows to create custom pieces of code according to operator skills (ladder diagram, structured text, function block diagram and so on);
- ◆ Advanced function block libraries, simplify and speed up the realization of even the most complex programs (e.g. process functions, math, logic, etc.);
- ◆ It is possible to create new function libraries and protect the personal code so that they can be reused when necessary.

ADVANCED PID ALGORITHM

Accurate PID control.

- ◆ Advanced algorithms for a complete and reliable process control;
- ◆ Examples of most common control strategies (cascade, override, multi-loop, ratio, etc.) can be used as is or as examples for custom application developments;
- ◆ "Smart" function blocks, with overshoot control and auto-tuning, to obtain a reliable and quality control;
- ◆ 16-bit resolution analogue signals to ensure high accuracy of calculation and adjustment.



OPEN CONNECTIVITY

AC³nP can be connected to existing networks using ModBus standard protocol or through gateways.

Available hardware:

- ◆ RS485 comm with ModBus RTU Master/Slave protocol;
- ◆ Ethernet with ModBus TCP Server protocol;
- ◆ RS232 or 485 comm with ModBus RTU Master, Slave or ASCII protocols.

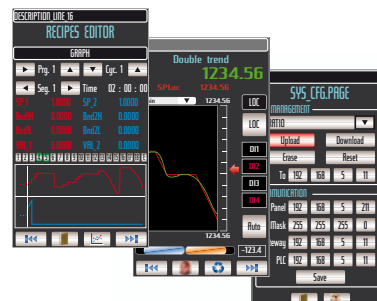


EXPANDABILITY AND NETWORK

- ◆ Additional expansion units (eP4 and xP4) to increase system modularity;
- ◆ Local Area Network between **AC³nP** devices to share resources via a serial bus (max. 8 instruments). Communications are implemented in the programming software using specific function blocks.

INTEGRATED DATA LOGGER AND SETPOINT PROGRAMMER

- ◆ The data are recorded and displayed in graphical form.
- ◆ It is possible to pre-load various control strategies and enable the specific application.
- ◆ Several types of setpoint programmer function blocks are available with a wide number of programs and segments.



THE EVOLUTION OF AC STATION

AC³nP compact is the natural replacement of AC Station controller:

- ◆ The AC Station replacement mounting kit has the same cut-out (code PA) and the same amount/type of I/Os;
- ◆ Up to 2 expansion modules can be connected. Wiring the X₄ connector, it is possible to reproduce a local area network (LAN) to emulate the ARCNET function available with the AC Station units.



AUTOCLAVES

- ◆ Adjustment of pressure and temperature according to specific profiles (programs);
- ◆ Integration of loading and unloading control logic and alarm management.

BOILERS AND STEAM GENERATORS

- ◆ 3 elements drum level control;
- ◆ Salinity and blow-down control;
- ◆ Alarm handling and implementation of operation logic.



COLD STORAGE ROOMS FOR FRUITS AND VEGETABLES

- ◆ Temperature control of antifreeze mixtures and condensation pressure circuits.
- ◆ Defrost based on the desired values of humidity and temperature in the environment.

SPRAY BOOTHS

- ◆ Control of temperature and pressure;
- ◆ Spraying and drying recipes.



CHARACTERISTICS AND DIMENSIONS

P04 operator interface

CHARACTERISTIC	
Power supply	24Vdc/Vac
Consumption	8... 10W
LCD type	TFT
Screen	4.3"
Size	16/9
Touch-screen	Resistive
Resolution	480 x 272
Colours	262000
Back Light	LED type
Interfaces	Ethernet USB 2.0 (device and host)
Dimensions	83 x 159 x 28 mm (W x H x D)
Panel Cut-out	68 x 127 mm (P04 only) 68 x 138 mm (with AC station adapter)
Weight	200 g
Protection degree	IP65 (front), IP20 (back)
CE Standards	EN61151-3, 61000-3-3:1995+A1:2001+A2:2005

nP4 CPU module

CHARACTERISTIC	
Power supply	24Vdc
Consumption	12 W
Analogue inputs	4 universal configurable
Digital inputs	8 max. at 24 Vdc
Fast digital inputs	2 (5 kHz max.)
Analogue outputs	0/2/4 configurable
Digital outputs	8 max. at 24 Vdc, 0.7 A
Special digital outputs	4 relays SPST 2 A
Interfaces	Ethernet 1 RS485 + 1 RS232/485 selectable
USB	AB type microUSB (Host mode)
Dimensions	105 x 110 x 60 mm (W x H x D)
Weight	512 g
Mounting	On OMEGA DIN rail
Protection degree	IP20
Operating temperature	-20... 50 °C (-4... 122 °F)
Stocking temperature	-40... 70 °C (-40... 158 °F)
Operating humidity	5... 95 RH% with no condensation
CE Standards	EN 61131-2

Accessories

- **APS2ALDR12024** 24 Vdc 5 A Power supply;
- **APS2ATOPEH2306** 6 ports 10/100/1000 Ethernet Switch.

ORDER CODE

CPU Module

AC3nP = Module nP4

Analogue Inputs +I/O Configuration

- = None
2 = 1 module with 2 analogue outputs
4 = 2 isolated modules with 2 analogue outputs each

Analogue Outputs

- = None
1 = 2 High level outputs
2 = 4 High level outputs

First expansion module

-- = None
M1 = Modbus 4 UI + 8 DI + 8DO + 2 DI CNT
+ 4 OP relays
M2 = Modbus 4 UI + 2 AO+ 8 DI + 8DO + 2 DI CNT
+ 4 OP relays
M3 = Modbus 4 UI + 4 AO + 8 DI + 8DO + 2 DI CNT
+ 4 relays OP

Second expansion module

-- = None
M1 = Modbus 4 UI + 8 DI + 8DO + 2 DI CNT
+ 4 OP relays
M2 = Modbus 4 UI + 2 AO+ 8 DI + 8DO + 2 DI CNT
+ 4 OP relays
M3 = Modbus 4 UI + 4 AO + 8 DI + 8DO + 2 DI CNT
+ 4 relays OP

Serial ports

-- = None
1S = COM1 standard
1I = COM1 Isolated
2S = COM1 + COM2 Isolated
2I = COM1 Isolated + COM2 Isolated
4I = COM2 Isolated

Operator panel

- = None
P = P04 Operator panel with Adapter
A = Adapter

ACC = Cabling and accessories

- = None
C = Short Installation Board + 0.2 m cable
I = Long Installation Board + 0.2 m cable
0 = 0.2 m cable
1 = 1 m cable
2 = 2 m cable
5 = 5 m cable

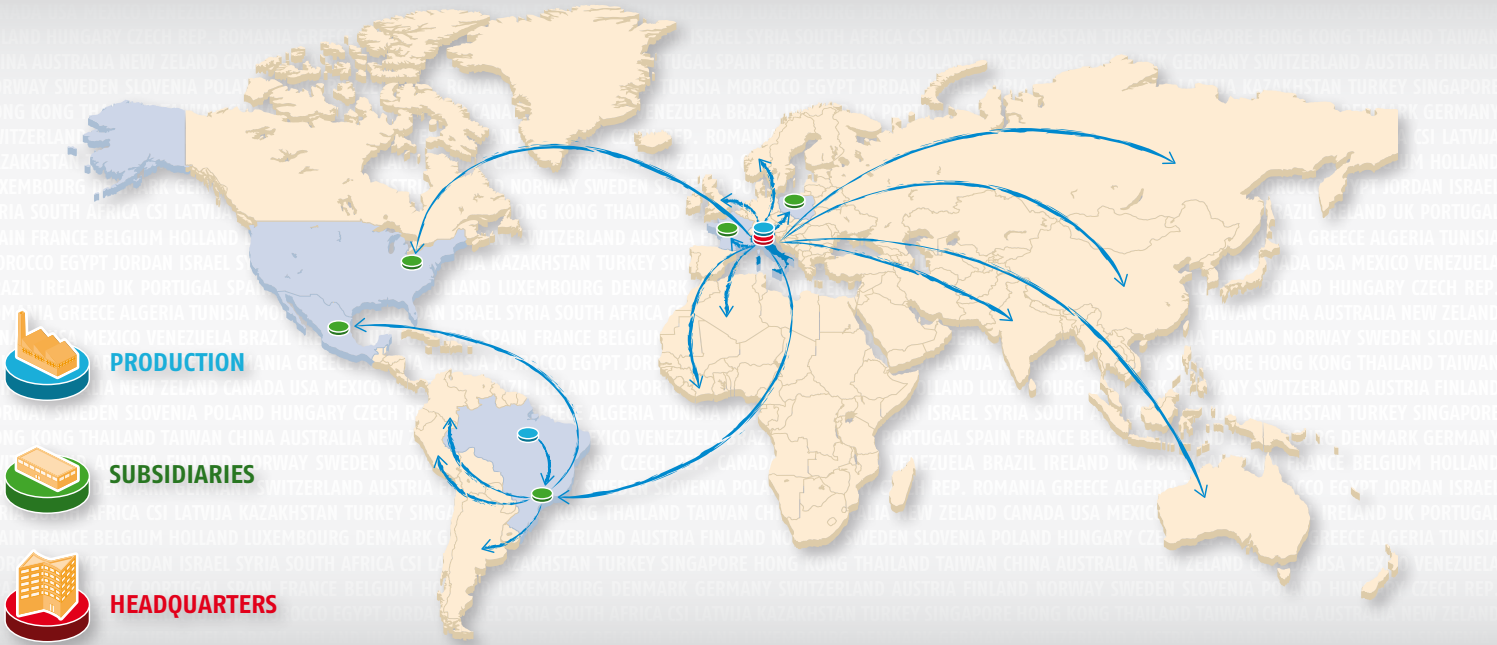
HW/SW AC3 Customization

xxxx = Reserved (internal use only)

SW Subversion

x = Reserved (internal use only)





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