

PAC Data Sheet

PAC

The PAC is a Programmable Automation Controller, based on a microprocessor architecture, and it executes the functionalities of:

- PLC ;
- Axis Management;
- Human Interface;
- Communication.

The PAC is constituted by a **central unit** that is housed in a case of reduced dimension similar to box for driver and inverter and therefore it can be easily housed in electrical cabinet.

The three environments, PLC, Axis Management and Operator interface, share an unique development system and they are programmed with standard and of wide diffusion languages (C, languages complying with .net standard, IEC61131).

The **PLC** executes the control law in a real time and multithread environment and it can be programmed through standard languages. The development tools simplifies the debug.

The **Axis Management** makes the Motion development independent from different hardware configurations and it guaranties an high flexibility of controlling.

The **Human Interface** is executable on central unit and it is developed with tools of wide diffusion.

The **Communication** guaranties the transparency of control law with supervisor and control system and with other PAC devices.

Models

The PAC is available in three different models and it can be chosen in function of demanded computing capability in order to optimize the price-performance ratio; exemplifying it is possible to choose a model with reduced calculating power if the human interface is processed by external PC (SCADA) or if the number of CANopen node is low and finally if the PLC scanning time and axis controlling time allow it. All models have the same characteristics about connection and power supply, while the overall dimensions are the same for ULISSE and AIACE models, so these units are interchangeable. The software, which has been developed for each model, runs also on other models. The peripherals for axis and I-O management, the interface operator units are common to all models and to CNC products.

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ULISSE

ARM architecture

Windows CE Operating system



AIACE

PC architecture

Windows CE Operating system



ACHILLE

PC architecture

Windows XPembedded Operating system



ULISSE

HEIGHT	140,0 mm
WIDTH	166,0 mm
DEPTH	122,0 mm

AIACE

HEIGHT	140,0 mm
WIDTH	166,0 mm
DEPTH	145,0 mm

ACHILLE

HEIGHT	391,0
WIDTH	87,0
DEPTH	178,0

Configuration of PAC model

	ULISSE	AIACE	ACHILLE
Architecture	ARM9 500MHz	X86 500 MHz	X86 800 MHz o 1.5 GHz
Minimum scanning time	10msec	5msec	1msec
Process for axis management	1	2	8
Max. Control. axes (*)	8	16	64
Available axis interface:			
CANopen	Max. axes 8	Max. axes 16	Max. axes 64
SLM	Max. axes 3 (option)	Max. axes 8 (option)	Max. axes 12 (option)
MechatrolinK I	Max. axes 3 (option)	Max. axes 8 (option)	Max. axes 15 (option)
MechatrolinK II	Max. axes 3 (option)	Max. axes 8 (option)	Max. axes 32 (option)
Analog	Max. axes 3 (option)	Max. axes 6 (option)	Max. axes 12 (option)
Pulse/Direction	Max. axes 3 (option)	Max. axes 6 (option)	Max. axes 12 (option)
CANopen Port (DSP401 and DSP402)	yes	yes	yes
CANopen Nodes	16	32	64
Total I-O (*)	1024	2048	4096
Compact Flash	256 MB (option)	1 GB	1 GB
USB ports	2 (+ 2 option) (**)	2 (+ 2 option)	4
Serial ports	2 RS-232 (***)	2 RS-232	2 RS-232
Parallel port	no	no	1
1wire port	1 option	1 option	no
LAN port	10 Mbit/sec	10/100 Mbit/sec	10/100 Mbit/sec
Second LAN port	10 Mbit/sec (option)	10/100 Mbit/sec (option – Ethercat protocol)	10/100 Mbit/sec (option – Ethercat protocol)
Wireless interface	Internal (****) (option)	Internal (****) (option)	Extern (option)
PS/2 port	no	no	2
Video port	VGA LVDS	VGA LVDS	VGA LVDS
Maximum video resolution	VGA (e XGA option)	XGA	XGA
Minimum video resolution	QVGA	VGA	VGA
Power supply	24 Vdc	24 Vdc	220 Vac or 24 Vdc

Note.

(*)The value are theoretical and valued for digital interface with support for single bus (for example CANopen) and with the maximum elaboration capability for the referring model.

(**) The maximum number of USB devices that can be totally connected is 11.

(***) As option, one of the two serial ports can be chosen of RS-485 and RS-422 type.

(****) In develop

A particular version of Ulisse **PAC** is named **TELEMACO**: is available in four different arrangements: Generic PAC arrangement and compact arrangements Positioning, Displaying of Heights and “Programmable” Operator Panel. The central unit is provided of ARM architecture, Windows CE operating system and it needs of +24Vdc power supply. The compact arrangements are comprehensive of video. The display is of TFT type 4,3” wide, resolution 478 x 272, with Touch Screen function. An USB port is available on front panel.

Performances	Generic PAC	Positioning	Displaying of Heights	“Programmable” Operator Panel
Max. Control. axes - Analogic - Pulse/Direction	4	4	4 Counting Inputs	0
Total digital I-O	8 DI + 8 DO (Option: 16 DI + 16 DO)	8 DI + 8 DO (Option: 16 DI + 16 DO)	0	0
Total Analog I-O	2 A/D + 1 D/A	2 A/D + 1 D/A	0	0
USB ports	2	2 + 1	2 + 1	2 + 1
Serial ports	2 RS-232 (*)	0	0	2 RS-232 (*)
LAN port	10Mbit/sec	0	0	0
Video port	LVDS (option)	no	no	no
Video 4,3” wide	(option)	yes	yes	yes
Expansion port	yes	yes	no	no

Details of performances:

- Measure Channel = max input freq. 1 MHz.
- Reference Outputs Analogical = +/- 10Volt, resol. 16 bit.
- Reference Outputs Pulse/Direction = 0..5V Single-Ended.
- Digital Input (DI) = type PNP 24Vdc Opt-isolated.
- Digital Outputs (DO) = type Mosfet 24V-2A.
- Analog Input (A/D) = 0-10V, resolution 12 bit.
- Analog Output (D/A) = 0-10V and resolution 12 bit. As option, the second input can be chosen among these options : 4-20mA, PT100, Thermocouple.
- Serial Ports(*) = As option, one of the two serial ports can be chosen of RS-485 and RS-422 type
- I-O Expansion port = Expansion port for separated I/O unit in order to add up 32 Digital Inputs, up to 2 Analogical inputs and up to 6 Fast Encoder counting (max freq. counting 1 MHz, level TTL).



Overall Dimensions

HEIGHT	161,0 mm
WIDTH	161,0 mm
DEPTH	148,0 mm

The picture shows PAC TELEMACO with Positioning arrangement

Summary of model and Versions

The **PAC Ulisse** is provided of ARM architecture, offers n.1 CANopen port, n.2 USB ports, n.2 Serial ports, n. 1 LAN port 10Mbit/sec, video ports VGA and LVDS. It is available in 3 versions:

- UN07000U00 : Base version
- UN07001U00 : Base version + Compact Flash of 256 Mbyte or bigger
- UN07002U00 : Base version + Compact Flash of 256 Mbyte or bigger + expansion for Ram memory of 128 Mbyte.

All versions can house the option second LAN port + 2 USB ports + 1Wire connector (OPLAN21W00).

Il **PAC Aiace** is provided of X86 architecture, it available in one version UN07000A00 (n. 1 CANopen port , n. 2 USB ports , n. 2 Serial ports, n.1 port LAN 10 Mbit/sec, Video ports VGA and LVDS, memory mass Compact Flash of 1G or bigger).

The version can house the second LAN port + 2 USB ports + 1Wire connector (OPLAN21W01).

Il **PAC Achille** is provided of architecture X86, offers: USB, serials RS-232, parallel, PS/2 (Mouse and Keyboard), Video (VGA and LVDS), 1 port LAN 10/100Mbit/sec, CANopen, services (5 V). It is available in four versions

- UN07000K00 : base version with 3 available slot
- UN07001K00 : fast version with 3 slot available + second LAN
- UN07002K00 : base version with 6 available slot + second LAN.
- UN07003K00 : fast version with 6 available slot + second LAN

The base version includes CPU at 800 MHz and memory RAM of 512 MB otherwise the fast version includes CPU of 1,5 GHz and memory RAM of 512 MB

The PAC Achille can be configured with power supply at 24 Vdc (OPALI024V0) or at 220Vac (Code OPALI220V0 for version with 3 slot and Code OPALI220V1 for version with 6 slot).

General Technical Characteristics

The degree of protection IP20.

The working temperature is 0 +45 centigrade degree.

The storing temperature is -20 +70 centigrade degree

The maximum degree of damp is 90% with no condensation.

Every CNC case are prepared for the fixing to the panel (The boring template in available on documentation).