

Product Description

The communication interface WebGate Plus PO9902 allows Altus programmable controllers and others devices with slave ALNET I protocol to connect to an Ethernet network 10/100 Mb/s. The WebGate Plus allows those controllers to communicate with supervision and control systems, with others PLCs, with the MasterTool programming software or with a browser.

The access to the device where the WebGate Plus is connected can occur of two different ways and occasionally simultaneous. The first is through the ALNET II protocol over TCP/IP. This protocol, in master mode, is available in several supervision and control systems, in PLCs and in some versions of the MasterTool programmer. The second way is through browsers using HTTP as application protocol and XML standard in the definition of the tags of answer.

The figure shows the WebGate Plus PO9902.



Main features from this product:

- WebServer using HTML and XML, allowing dynamic page creation with data of process
- Building of supervision system with technologies: Flash, Java, JavaScript and VBScript, allowing access by a standard browser
- Integration of any ALNET I device, with compatible protocol, to Ethernet and Internet
- Interlocking among PLCs through master mode operation
- Programming and remote monitoring through the MasterTool programming software in Ethernet networks
- Application protocol: ALNETWeb (ALNET II, HTML, FTP)
- Transport protocols: TCP/IP
- Processor of independent communication of the main UCP
- Local diagnostic through LEDs at panel
- Diagnose statistic from interface and from Ethernet network,

helping the system maintenance

- Restrict access through address IP to HTTP
- Access controlled by passwords in HTML pages
- Protection of writing access by hardware
- Supplied with base to assembly in DIN TS35 rail

ATTENTION:

This WebGate Plus model have not else 8 points of local digital input/output.

Ordering Information

Product Packaging

The product packaging comes with:

- WebGate Plus PO9902
- One Card CD
- Installation Guide

Product Code

Please use following product code when ordering:

Code	Description
PO9902	WebGate Plus - Ethernet Interface 10/100 Mb/s with WebServer

Related Products

The following products might be ordered along if necessary:

Code	Description
AL-1714	RJ45-RJ45 RS232C Cable
AL-1719	RJ45-CMDB9 RS232C Cable
AL-1720	RJ45-CMDB9 RS232C Cable
AL-1726	RJ45-CFDB9 Cable
AL-1727	RJ45-CMDB9
MT7000	WebView – Supervision and Control Software by Web

Notes

AL-1714: cable with Altus standard male RJ45 at each extremity. It is used for:

- Interconnection of WebGate Plus with serial interface COM 3 from PL104 and PL105
- Interconnection of WebGate Plus with PLCs from Ponto and Grano (RJ45) Series

AL-1719: cable with Altus standard male RJ45 and Altus standard male DB9. It is used for:

- Interconnection of WebGate Plus with CPUs from AL-2000 and QK-801 Series

AL-1720: cable with Altus standard male RJ45 and Altus standard male DB9. It is used for:

- Interconnection of WebGate Plus with serial interface COM 1 from Piccolo Serie

AL-1726: cable with Altus standard male RJ45 and IBM/PC standard female DB9. It is used for:

- Interconnection of WebGate Plus with IBM/PC standard microcomputers through RS232 interface

AL-1727: cable with Altus standard male RJ45 and MODEM standard male DB9. It is used for:

- Interconnection of WebGate Plus with Optic Modem

MT7000: Java applets to be used on HTML page development and to allow visualization, in conventional browsers, of operands from Altus CPU connected to WebGate Plus.

Features

	PO9902
Type	Ethernet Communication Interface 10/100 Mbits/s with WebServer
Ethernet Port	Physical level: RJ45 – 10/100BaseTx Enlace level: Ethernet DIX2 Network level: IP Transport level: TCP
Available Protocols at Application Level	ALNET II FTP: file transferring for Web interface HTTP: communication with standard browsers
Available Formats	HTML, XML, Flash, Java, JavaScript and VBScript
Compatible Browser	Internet Explorer 5.0 or later
Available XML Commands	Operators reading and writing Status reading
Access Control System	Users with different access rights Encrypted password Hard-key to protect memory write
Flash Memory for Local Pages	150 Kbytes
Serial Port COM1	RS232C, until 19200 bps Configuration or communication mode selected by user
Serial Protocols	Serial: ALNET I
Local Configuration	4 DIP Switch on base
Diagnostic Indication	LED S1 – traffic in serial channel LED NT – traffic in Ethernet channel LED DG – diagnostics LED MA – access to memory card
Power Supply	10 to 30 Vdc (ripple included)
Power Consumption	160 mA @ 24 Vdc
Power Dissipation	4,0 W (maximum)
Protection	Inside the module, fuse 1A
Maximum Operating Temperature	0 to 60 °C (upper to IEC 61131 standard)
Maximum Storing Temperature	-25 to 75 °C (according to IEC 61131 standard)
Dimensions	103,0 x 97,2 x 101,8 mm
Installation	Mounted on DIN TS35 rails
Standards	IEC 61131-2: 2003, chapters 8 and 11

Compatibilities

The following table describes the compatibility of the PO9902 interface with main Altus devices.

Device	Description
WebGate	Ethernet Configurator, compatible since version 2.18
PO9901	WebGate Plus, Ethernet Interface with WebServer
PO7091	Industrial Ethernet Interface
PO7092	Industrial Ethernet Interface 10/100 Mbits/s
AL-3412	Interface Ethernet 10/100 Mbits/s
AL-3414	MODBUS TCP Redundant Ethernet Interface

Using the Ethernet Feature

The PO9902 Ethernet TCP/IP canal has two distinct functions that may be used simultaneously:

- Communication network with others controllers in order to exchange data, supervision stations and MasterTool programming software. For such cases the protocol used is ALNET II over TCP/IP – compatible with others Altus Ethernet interfaces (please consult the table of compatibility).
- Access channel with Internet protocols, allowing access to data of processing through a browser. Through Internet protocols the WebGate Plus provides pages with real time data from the connected controller. Any authorized user may access such data from any computer connected to the Internet, there is no need for any additional plug in or special configurations.

ATTENTION:

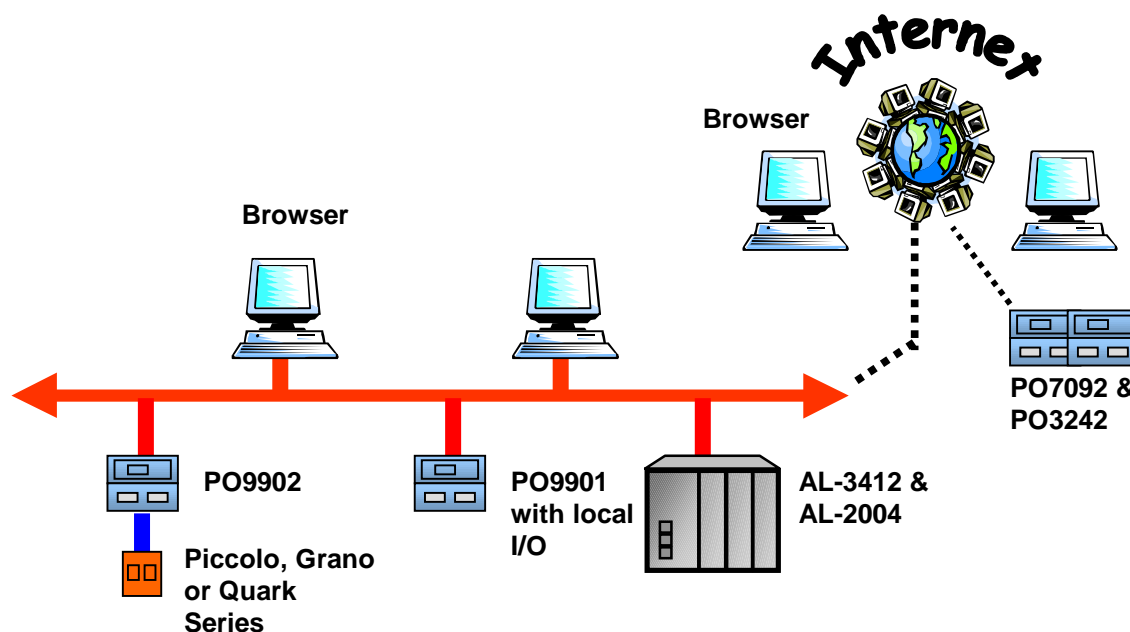
The Ethernet interface uses twisted pair (10/100Base-Tx) at the physical level; therefore the network integration requires hubs and/or switches.

The multi-master communication network allows programmable controllers to read and write variables (operands) on other controllers compatible with ALNET II over TCP/IP. Through AL-3412 or AL-3414 interfaces, the AL-2000 PLCs Series establish the communication with other PLCs connected to WebGates Plus.

Any Altus PLCs that don't have Ethernet interface (like Piccolo, Grano and Quark Series) may be connected to Ethernet networks through a WebGate Plus interface. Then such PLCs may exchange information among them and also with any AL-2000 Series PLCs (through AL-3412 or AL3414 interfaces) or any Ponto Series PLCs (through PO7091 or PO7092 interfaces).

Computers with supervision software may simultaneously access the same controllers. Through WebGate Plus, the controllers from Piccolo, Grano or Quark Series may access any other controller or equipment featuring the ALNET I slave protocol.

The following diagram shows some of the communication possibilities.



As shown on the diagram, all Altus controllers may now communicate through TCP/IP networks. Through the WebGate Plus, old and brand new controllers from Quark, Piccolo, Grano, Ponto and AL-2000 Series also may take advantage of the Internet. The interface PO9902 stores HTML pages that allow the implementation of simple supervision systems accessible through any conventional browser. No special configuration of plug in is required. The available communication technologies are XML, Flash, Java, JavaScript and VBScript.

Using XML technology it is possible to build dynamic pages with real time data from the controllers as well as remote modification of such data. The presentation format is configurable through style sheets. Through XML commands it is also possible to access data directly from databases to controllers.

The update of pages may be performed remotely using FTP protocol through the Intranet or Internet. Some examples of available software for that purpose are WS-FTP and CuteFTP.

The internal memory for HTML pages has a capacity of 150Kbytes. It may be expanded using a memory card or links to external web servers.

The XML commands allow the communication with browsers and all other systems using this widespread technology in order to access the controller. One of the greatest benefits is the direct integration with relational databases (like Oracle, Sybase) that are embracing these standards.

The integration with Internet is an option. The access through browser may be limited only to the supervision local network.

Access Control System

The access control system is based on user name and password with different authorization rights for XML commands through HTTP. For example, if the writing into operands is blocked for any user, the modification of parameters from controller through a browser, or through an application program which sends HTTP/XML commands, will be impossible.

ATTENTION:

It is recommended to install a firewall system when enabling Internet access into controllers. This procedure will increase the system security provided by passwords.

WebGate Plus has a DIP hard-key which enables/disables data writing into operands from CPU connected through ALNET I protocol.

ALNET II over TCP/IP Protocol Commands

The ALNET II over TCP/IP protocol supports the following commands:

Type	Description
Operand Access	Writing Operands Reading Operands
Status	Reading Equipment Status Reading Communication Status Reading Forcing Status Reading IO Bus Status Reading IO Status
Program Modules	Removing Programming Module Re-enabling EPROM Module Transferring EPROM Module into RAM Transferring RAM Module into EPROM Erasing EPROM Flash Memory Compacting RAM Memory Reading General Directory of Modules Reading Program Module Status Reading Directory of Program Modules Reading Program Module
Status Changes	Switching into Programming Status Switching into Execution Status Switching into Cycled Status Executing one Cycle
Specials	Disabling Digital Outputs Enabling Digital Outputs Releasing All Forced IOs Releasing Operands Changing Protection Level Changing Password

XML Commands

Through a Web interface the user may utilize a set of commands for reading and writing of operands, as well as reading the controllers status. The Web protocol supports the following commands:

Type	Description
Operand Access	Writing Operands
	Reading Operands
Status	Reading Equipment Status
	Reading Communication Status
	Reading Forcing Status
	Reading IO Bus Status

Processing Capacity

The PO9902 communication interface is indicated for integration of any Altus programmable logic controller with a TCP/IP network. Although, it is important to note that the interconnection between the PO9902 and the PLC is realized through ALNET I/ RS-232C protocol. This feature limits the answer time of messages until the speed of the serial communication channel.

As well, the applications which need of interlocking between PLCs must take into consideration that this operation needs of ALNET I/RS232C transactions with operation controlled by an application program into the PLC. The latent of interlocking stays limited until the outflow of messages from serial channel.

Then, critical applications which need of least communication time must analyze whether the architecture needs using a stronger interface, as AL-3414, or whether it can operate into the limits imposed by the PO9902 interface. These limits are directly proportional to the quantity of interchanged information, configured sweep time and cycle time from PLC interconnected by the PO9902.

Installation

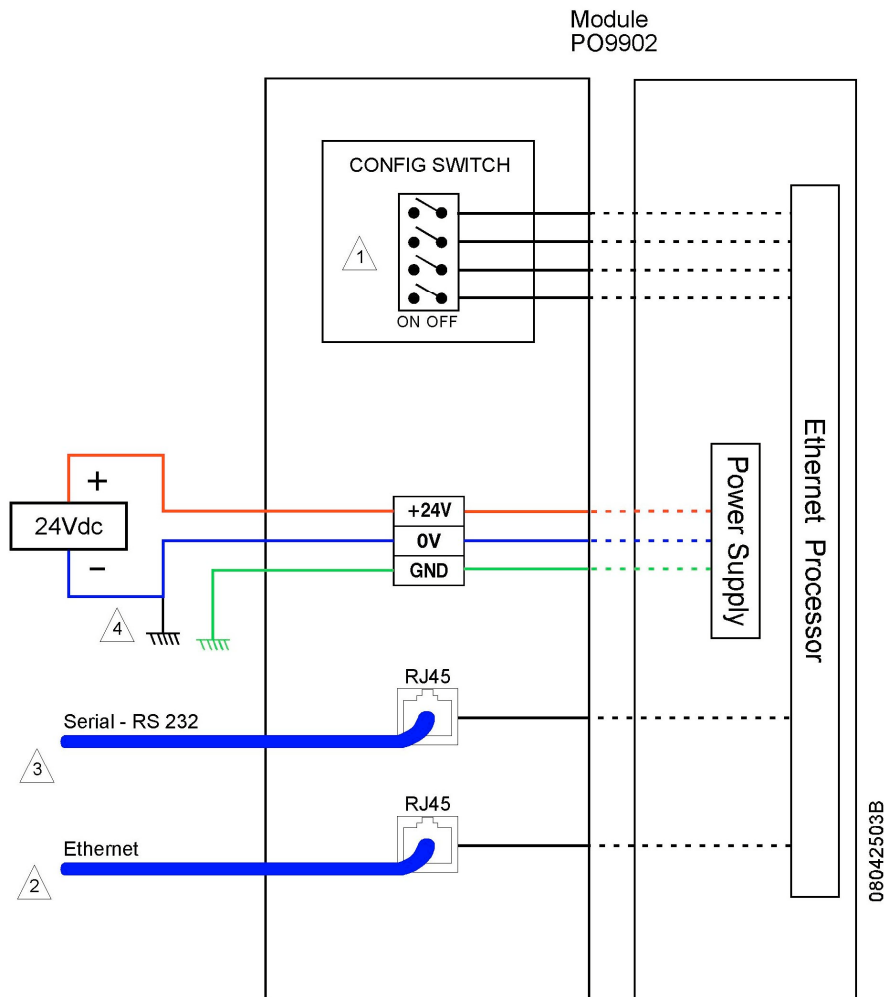


ATTENTION:

Device sensible to static electricity (ESD). Touch on grounded metallic object before handle it.

Electric Installation

The diagram shows the wiring from power source of 24 Vdc and cables of connection from serial channel and Ethernet with the PO9902 module installed on base.



Notes of diagram:

- 1 – Configuration keys from module.
- 2 – Standard Interface RJ45-10/100Base-Tx for Ethernet.
- 3 – Standard Interface RJ45-RS-232C for configuration/communication.
- 4 – The power source of 24 Vdc is connected at terminals of “+24 V”, “0 V” and grounding “GND”. The common point of the power source of the modules (0 Vdc) must be turn on ground from the electric panel. This joining is obligatory.

ATTENTION:

Atmospheric discharges (rays) can do harm to module though existent protections.

If the power of the module is deriving from source located out the electric panel, where the module is installed, and it may be submitted to those discharges, a suitable protection must be put in the entry of the panel control.

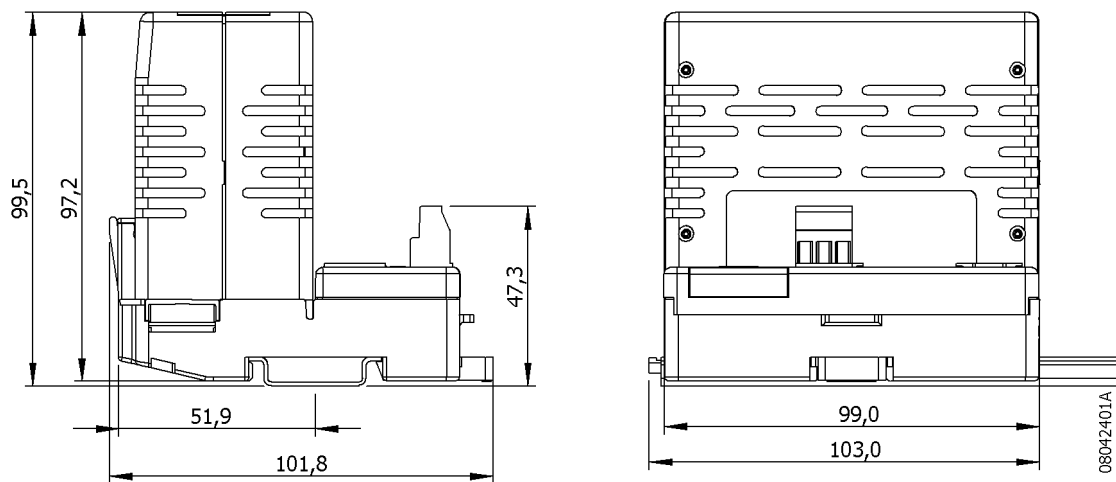
If the wiring of entry points is submitted to this type of phenomenon, a protection against tension boom must be used.

Physical Dimensions

Dimensions in mm.

Please, for dimensioning of the electric panel, consult the User's Manual from Ponto Serie and take into consideration dimensions from the interface base.

The figure below shows a PO9902 module on its base and over a DIN TS35 rail.



Manuals

Please refer to following documents for further technical details, configuration, installation and programming on PO9902 – WebGate Plus:

Document Code	Description
MU209000	User's Manual of Ponto Serie
MU209692	User's Manual of PO9902
NAP080	Page Development on PO9900 – WebGate
NAP103	Ethernet Network Configuration