Product Description

The communication interface WebGate PO9900 allows ALNET I programmable controllers to connect to a TCP/IP Ethernet network. Through the WebGate those controllers may be accessed by:

- Other Altus PLCs carrying the TCP/IP Ethernet interface (AL-2002 or AL-2003 / AL-3405)
- Supervision software
- Any Altus PLCs using the ALNET I protocol and another WebGate or
- A browser.

The WebGate connects to any device featuring a slave ALNET I port (available in all Altus PLCs and also some other equipment).

There are two ways to communicate with devices through the WebGate: either by protocol ALNET II/IP (supervision software, MasterToll programmer and some PLC models); or by browsers using HTTP and XML. Both communication methods may be used at same time.

PO9900 main features:

- Integration of any ALTUS controller to Ethernet networks using ALNET II/IP protocol and/or HTTP/XML.
- WebServer using HTML and XML allowing dynamic page creation with real time plant floor data
- Communication to any supervision system featuring a standard browser (available technologies: HTML, XML, Flash, Java, JavaScript and VBScript) with no need to any special configuration or plug in.
- Integration of any ALNET I device to Ethernet and Internet
- Two RS232C serial ports
- 10BaseT Ethernet interface for local area network (intranet) and Internet
- Small footprint

Ordering Information

Product Packaging

The product packaging comes with:

- WebGate PO9900
- One 3 ½" Floppy Disk
- One PO8540 cable

Product Code

Please use following product code when ordering:

Code	Description
P09900	WebGate Ethernet Interface with WebServer

Related Products

Depending on your system requirements, the following products might be ordered along with the PO9900. Please check with your sales representative if you have any questions.

Code	Description
AL-1330	PICCOLO Programming Cable
AL-1390	CMDB9-CFDB9 Cable
AL-1726	RJ45-CFDB9 Cable (WEBGATE/PONTO PLC)
PO8540	TTL-RS232 Converter for WebGate

Notes

PO8540 : it is a two cable set. The first cable has a RJ11 connector (serial TTL) at one end (for WebGate connection) and a male DB9 connector (serial RS232) at other end (similar to DB9 connector for IBM-PC™ compatible) – this is an active cable performing the TTL conversion into RS232. The second cable has female DB9 connectors at both ends and allows the interconnection of the first cable with an IBM-PC™ compatible. The PO8540 may be used for:

- WebGate configuration
- Communication with Altus CPUs. In such cases the second cable (double DB9 connector) must be replaced by AL-1330 cable when communicating to Piccolo Series, and by AL-1390 cable when communicating with AL-2000 or QK Series.
- Upload WebGate BIOS updates

AL-1330 : cable with male DB9 RS232 and IBM/PC standard female DB9. It is used for:

- Interconnection of WebGate with Piccolo CPUs

AL-1390 : cable with Altus standard male DB9 and IBM/PC standard female DB9. It is used for:

- Interconnection of WebGate with Series AL-2000, QK-600 and QK-801

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

- Interconnection of WebGate with PONTO PLC and serial interface Com3 from PL104 and PL105.

Features

	PO9900
Type	Ethernet Communication Interface
Ethernet Port	Physical level: RJ45 - 10BaseT (twisted pair) 10Mbps **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
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
Flash Memory for Local Pages	150 Kbytes
FTP	Yes
Available Formats	HTML, XML, JAVA, JAVA SCRIPT, FLASH and others
Serial Ports	2 TTL serial ports – availability to convert into RS232C through PO8540 cable
Installation	Mounted on DIN TS35 rails
Power Supply	24 Vdc
Power Consumption	1.47 W with all outputs on , 50 mA 1.20 W with all outputs off, 43 mA
Diagnostic Indication	Led NET
Isolation **Ethernet Port**	 750 Vac for 1 minute
Maximum Operating Temperature	60 ^{o}C
Dimensions	70 x 70 x 50 mm

Using the Ethernet Feature

The PO9900 Ethernet TCP/IP canal has two distinct functions that may be used simultaneously:

- Communication canal with controllers, supervision stations and MasterToll programming software. For such cases the protocol used is ALNET I/IP – compatible with AL-3405 interface from AL-2002 and AL-2003 controllers.
- Communication canal with standard browsers over the Internet. Through Internet protocols the WebGate 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.

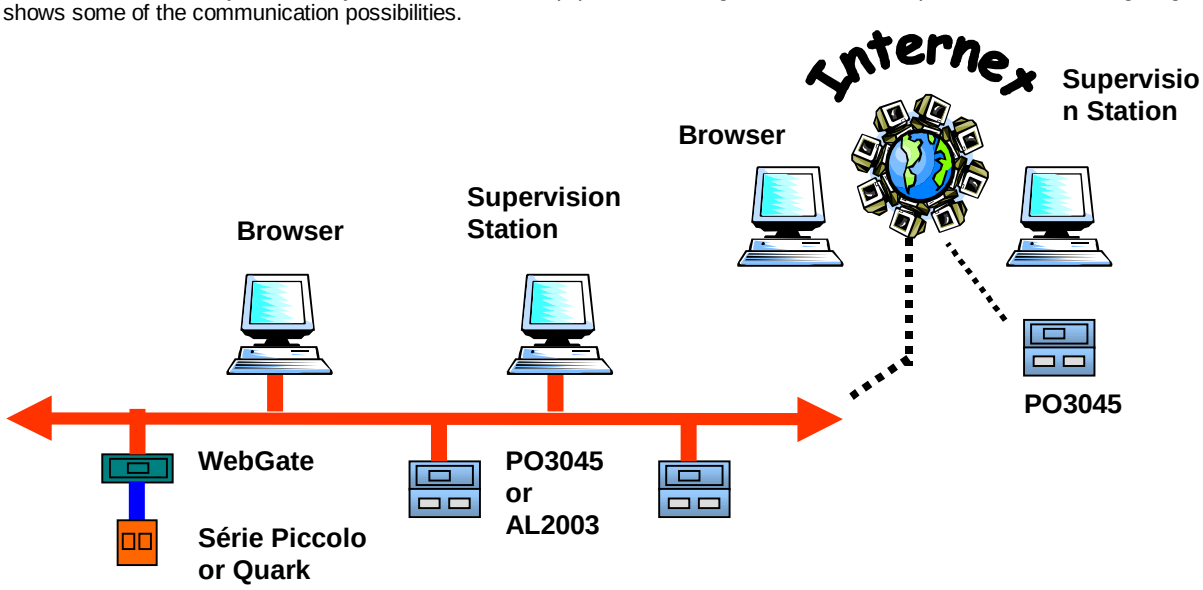
> ATTENTION:
> The Ethernet interface uses twisted pair (10BaseT) at the physical level; therefore the network integration requires hubs and/or switches. One of the greatest advantages of this architecture is the easy identification of damaged links. The whole network will keep functioning even if there is a TP cable rupture.

The multi-master communication network allows programmable controllers to read and write operands on other controllers with ALNET II/IP.

Through the AL-3405 interface, the AL-2002 and AL-2002 PLCs establish the communication with other PLCs connected to WebGates.

Any Altus PLCs that don't have Ethernet interface (like AL-600, Piccolo and Quark Series) may be connected to Ethernet networks through a WebGate interface. Then such PLCs may exchange information among them and also with any AL-2002 or AL-2003 PLCs (through the AL-3405 interface).

Computers with supervision software may simultaneously access the same controllers. Through the PO9900 WebGate the controllers PO3045 may access any other controller or equipment featuring the ALNET I slave protocol. The following diagram shows some of the communication possibilities.



As shown oh the diagram, all Altus controllers may now communicate through TCP/IP networks. Through the WebGate, old and brand new controllers from AL-600, Quark, Piccolo and AL-2003 Series also may take advantage of the Internet.

The interface PO9900 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 exchange data directly from databases to controllers and vice versa.

The pages update 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 links to external web servers.

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

The integration with the Internet is an option. The browse access 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 example, writing into operands may be blocked for any Internet or Ethernet communications.

> 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.

ALNET II/IP Protocol Commands

The ALNET II/IP protocol supports the following commands:

Type	Description
Operand Access	Writing Simple Operands Writing Table Operands 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 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.

Installation

Equipment Installation

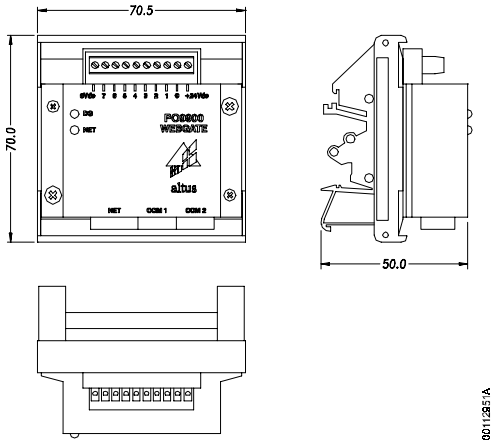
Please refer PO9900 WebGate Utilization Manual for installation procedures.

Mechanic Mounting

The WebGate is mounted on a DIN TS35 rail.

Physical Dimensions

Dimensions in mm.



Manuals

Please read **PO9900 - WebGate Utilization Manual** and **Application Note – Page Development on PO9900 - WebGate** before using the product.

Please refer to following documents for further technical details, configuration, installation and programming on Ponto Family products:

Document Code	Description
CT109000	General Features of Ponto Family
MU209690	PO9900 WebGate Utilization Manual
MU209000	IP20 Ponto Series Utilization Manual
MAN/MT4100	MT4100 - MasterTool Utilization Manual
NAP080	Application Note – Page Development on PO9900 - WebGate
NTP031	Technical Norm–ALNET I Protocol
CT109xxx	Ponto Series Technical Characteristics

Revisions

This CT, revision F, is valid for all versions of PO9900 Module.
The revision of this document appears on the header right corner. It indicates modifications on content or improvements on format.
Altus is constantly improving its products and documentation. This CT may be modified by Altus without previous notification.

Revisions Tracking History:

Revision: A	Date: 16/11/2000
Approval: Luiz Gerbase	
Author: André C. Nácul	

Notes:

- Initial Version.

Revision: B	Date: 30/01/2001
Approval: Luiz Gerbase	
Author: André C. Nácul	

Notes:

- Technical terminology revision.
- Inclusion of Application Note – Page Development on PO9900 – WebGate

Revision: C	Date: 13/03/2001
Approval: Luiz Gerbase	
Author: Rosana Casais	

Notes:

- Technical Application revision.

Revision: D	Data: 17/07/2001
Approval: Luiz Gerbase	
Author: Rosana Casais	

Notes:

- WebGate's identify changed.

Revision: E	Data: 13/11/2001
Approval: Luiz Gerbase	
Author: Rosana Casais	

Notes:

- Inclusion of master mode operation feature.

Revision: F	Data: 13/06/2002
Approval: Luiz Gerbase	
Author: Rosana Casais	

Notes:

- Inclusion of AL-1726 cabel to conect WebGate to PONTO PLC and PL104/PL105'Com3.
- Inclusion module power consumption.