Algorithmic system

Communication Interface

AE/SA-IDC - AE/SA-GAT

Installation Manual

VERSION 2.3
MAR/12

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TECHNICAL DESCRIPTION.

AE/SA-IDC and AE/SA-GAT Communication Interface are multifunction and multiprotocol equipments that can be customized to operate in different operation modes.
Designed by Aguilera Electrónica to allow the integration of the Algorithmic System equipments with different communication protocols by other manufacturers.

It is provided with the following communication ports:

	AE/SA-IDC	AE/SA-GAT
COM1	RS-232	RS-232
COM2	RS-485	RS-485
COM3	ARCNET RS-485	ETHERNET TCP/IP

The equipment configuration is made through an external software and the configuration values are kept in the EEPROM memory, which assures correct performance after a power supply failure.

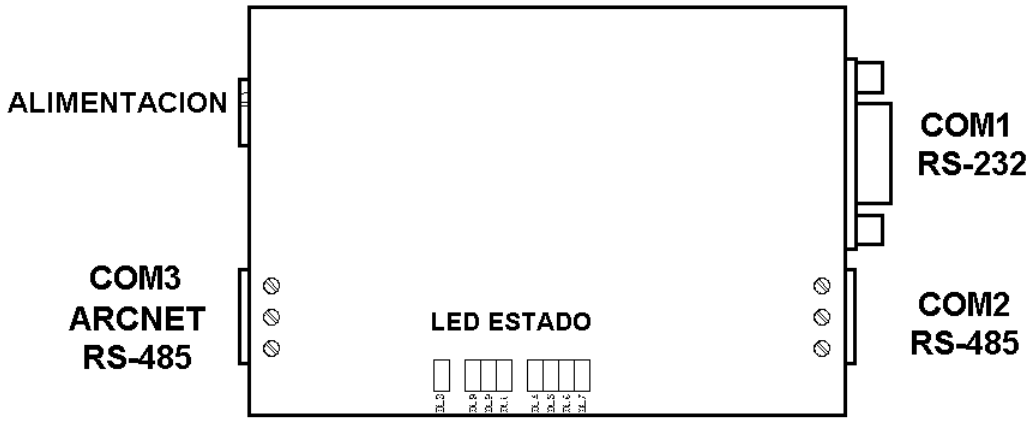
Supported communication protocols to the present day are:

	AE/SA-IDC	AE/SA-GAT
Aguilera Electrónica ARCNET	**YES**	NO
MODBUS/RTU	**YES**	**YES**
MODBUS/TCP	NO	**YES**
N2 de METASYS	**YES**	**YES**
GATEWAY	NO	**YES**
ESPA 4.4.4	**YES**	**YES**
OPTIMUS	NO	**YES**

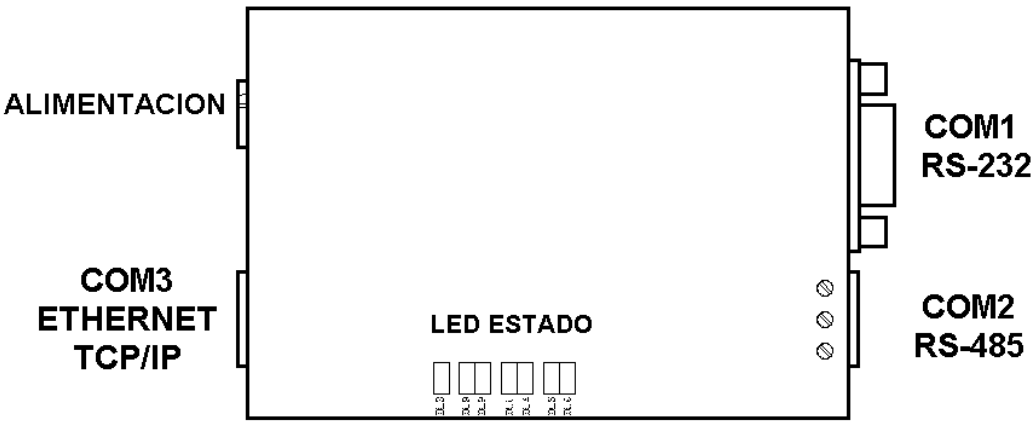
This manual is valid for the version of firmware V3.0 or higher, but how to maintain the compatibility in installations where equipments with firmware series 1 and 2 is also shown.

1 CONNECTION SYSTEM AND STATUS LED.

AE/SA-IDC Communication Interface is equipped with the following connectors:



AE/SA-GAT is equipped with the following connectors:



1.1 COM1 RS-232.

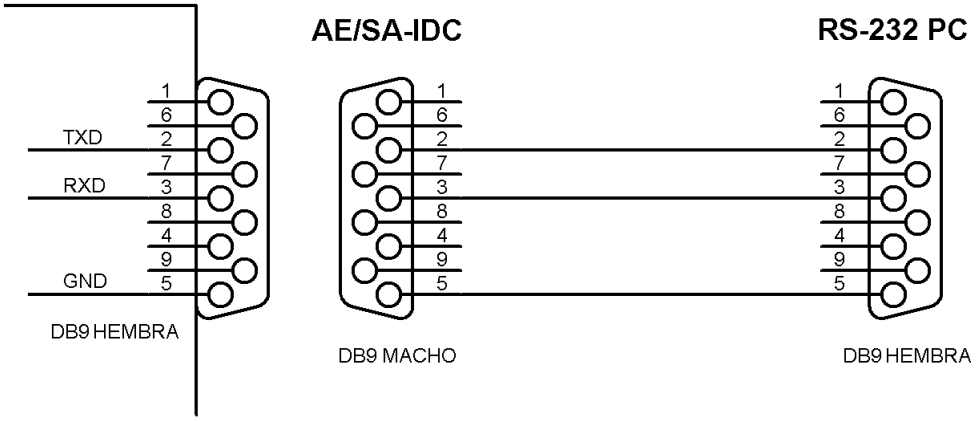
It has a DB9 connector with the following pin assignment:

- Pin 2 TXD
- Pin 3 RXD
- Pin 5 GND

The connection to a RS-232 port of a PC is made through a direct serial cable as shown in the diagram

It has two status-indicator LEDs:

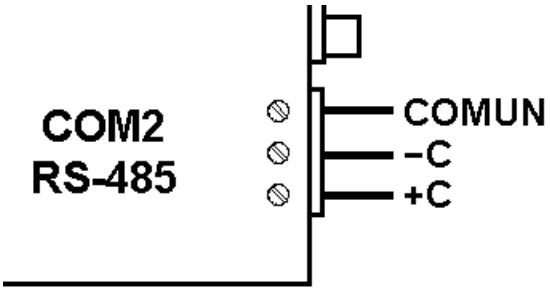
- Yellow reception.
- Red transmission.



1.2 COM2 RS-485.

It has connection terminals up to 4mm Ø, with the following assignment:

- Pin 1 +C
- Pin 2 -C
- Pin 3 Common

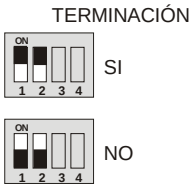


- It has two status-indicator LEDs LEDs:
- Yellow reception.
- Red transmission.

1.2.1 END OF LINE RESISTORS.

Through the selectors placed at the bottom of the equipment, an internal end of line resistor can be enabled.

To enable it, selectors 1 and 2 of the back dilswitch[1] have to be ON.

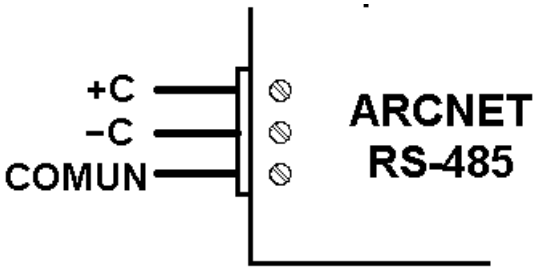


[1] In model AE/SA-GAT, only selectors 1 and 2 are available.

1.3 COM3 ARCNET RS-485.

Only available in the model AE/SA-IDC, it has connection terminals up to 4 mmØ, with the following assignment:

- Pin 1 +C
- Pin 2 -C
- Pin 3 Common



This port is exclusively to be used by Aguilera Electrónica protocol, for connections of AE2NET networked equipments using an ARCNET network on RS-485.

It has three status-indicator LEDs:

- Yellow reception.
- Red transmission.
- Yellow failure (depending on the number of flashes).

Number of flashes	Meaning
1	Wrong address
2	Error in hardware diagnostics
3	Duplicated network address
4	There are no more nodes in the network

1.3.1 END OF LINE RESISTOR.

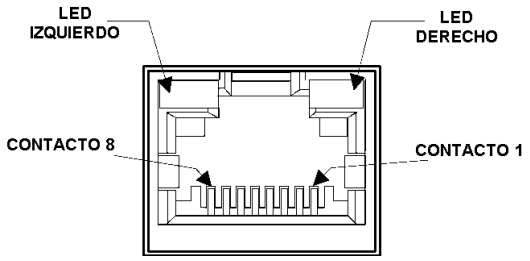
Through the selectors placed at the bottom of the equipment, a 120Ω internal end of line resistor can be enabled

To enable it, selectors 3 and 4 have to be ON.

The connexion should be carried out in a “Daisy chain” configuration and only the end of line resistors of the equipments placed at the ends have to be enabled, whenever the impedance of the cable used is the same value as the end of line resistor.

1.4 COM3 ETHERNET TCP/IP.

Only available in the model AE/SA-GAT, the connection is carried out through a 8-pin RJ-45 connector.



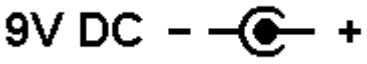
Left LED Connection	
Colour	**Meaning**
Off	without connection
Orange	10 Mbps
Green	100 Mbps

Right LED Activity	
Colour	**Meaning**
Off	Without activity
Orange	Half Duplex
Green	Full Duplex

1.5 POWER SUPPLY.

The Communication Interface is fed through the connector, by means of a 9V DC/0.5A external feeder.

Polarity shown has to be observed.



There is a green indicator light showing that the equipment is fed and its performance is correct.

During the first five seconds, the indicator light flashes to show that it can be recognized by the customizer, before starting the normal operation.

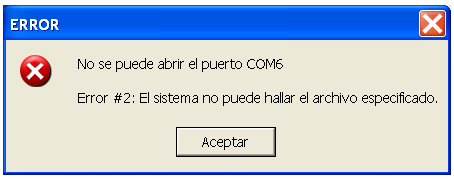
2 CUSTOMIZATION OF THE EQUIPMENT.

Customization of the Communication Interface is carried out through the programme *"Interface Customizer"* (AGE42IDC).

2.1 PORT SELECTION.

After running the application, the following window is shown where we will select the communication port we are going to use for communication with the Communication Interface and then press the button "Next".

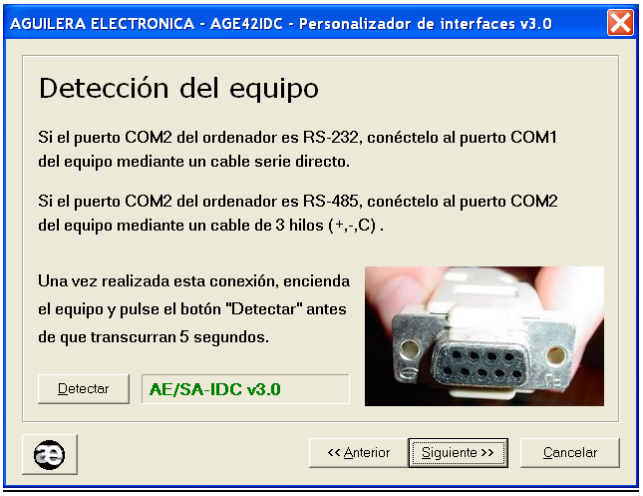
A communication port which is present in the PC should be selected, otherwise an error message will be shown.

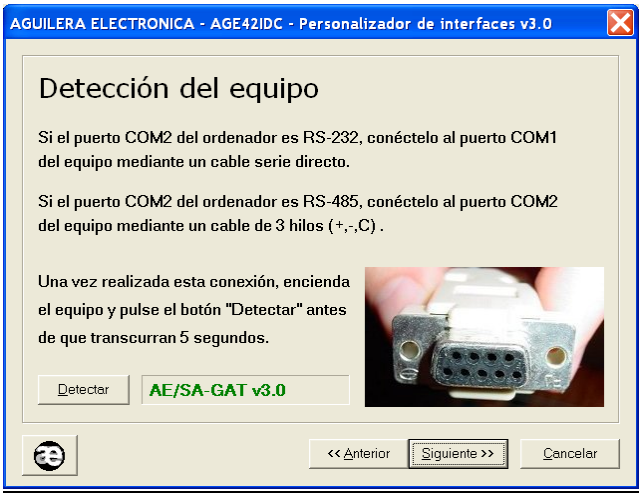


It also allows to select the language used for the programme operation.

2.2 EQUIPMENT DETECTION.

In this step the programme tries to communicate with the AE/SA-IDC or AE/SA-GAT communication Interface through the communication port selected in the previous step. Steps to be followed are shown on the screen.
If communication is successful, the present equipment customization can be red to allow to be modified in later steps.
Otherwise, the process can be repeated by pressing the button “Detect” or back to the previous step and selecting another communication port if we have made a mistake.

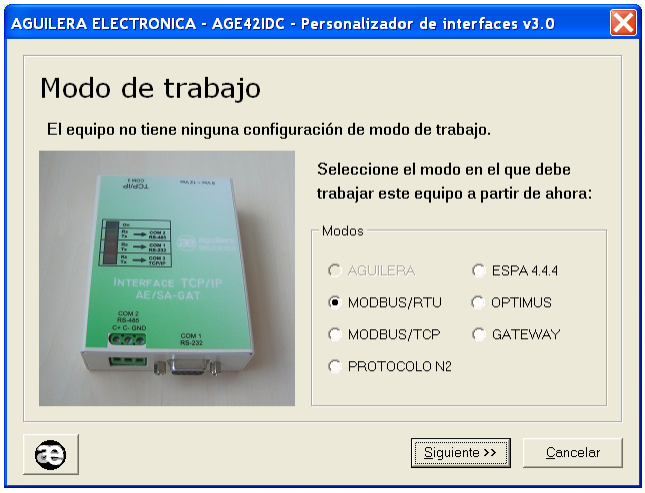




NOTE: Unless the interface has not been customized, it is necessary to switch the equipment off and then switch it on again. Press the button “Detect” before 5 seconds for the customizer to detect the interface correctly. During these first 5 seconds, the interface remains in a special mode of configuration, “listening” in its two ports the arrival of a customizer command. If no command arrives after some seconds, the equipment will be reset automatically and starts to operate according to its customization.

2.3 SELECTION OF THE WORK MODE.

In this step, the programme shows the currently configured work mode in the equipment, allowing us to leave it or select another of the modes available.
Operation modes available change depending on the type of Communication Interface, AE/SA-IDC or AE/SA-GAT.

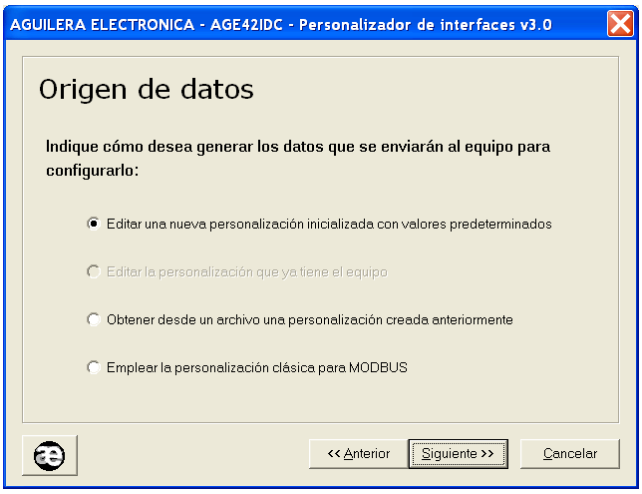


Only operation modes available for the hardware detected are shown to be active.

2.4 ORIGIN OF THE DATA.

The customizer programme allows us to choose the origin of the data to be used in order to carry out the equipment customization.

- **Editing a new customization initialized with default values,** according to the work mode selected.
- **Editing the customization that the equipment is already provided with,** maintaining the same work mode but allowing some of the values to be modified.
- **Obtaining a previously created customization from a file**, that was saved for a later use or as a back-up copy
- **Use the classic customization for MODBUS**,- **COMPATIBILITY WITH VERSION 1.0** – Allows the compatibility of equipments with firmware V2.0 or higher in installations where there are equipments with firmware series 1. Same addresses base for the register sub-table are automatically applied.

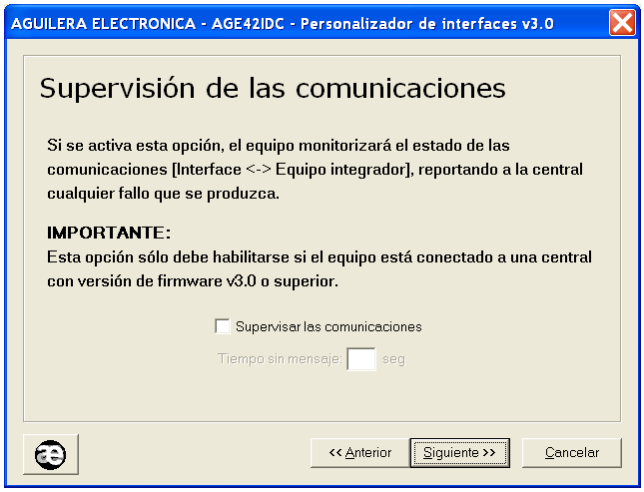


Only options adapting to the existing customization in the equipment and the work mode selected will be available.

2.5 COMMUNICATION SUPERVISION.

Algorithmic central units with firmware version v3.0 and higher are provided with a supervision device allowing for failure signalization in the communications with third-party equipments.

As a general rule, enabling this option is recommendable as any failure in the communications between the Interface and the integration equipment will be reported to the central unit to be properly signalized.



This option can only be enabled if the equipment is connected to a central unit with firmware version v3.0 or higher.

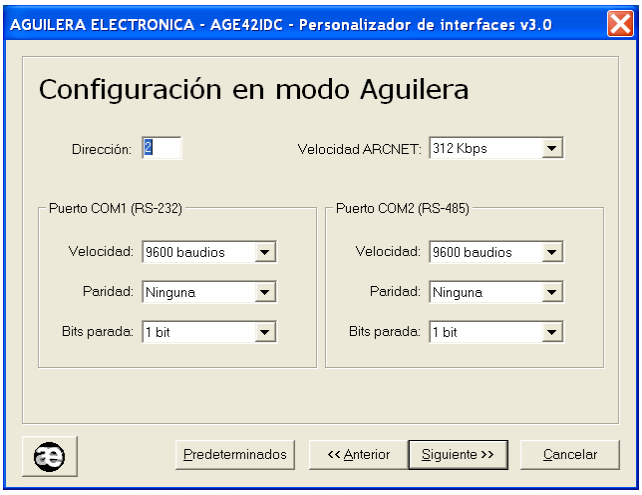
2.6 CONFIGURATION OF THE WORK MODE.

Depending on the previously selected work mode, different operation windows will be displayed.

2.6.1 Aguilera.

This operation mode is only available in the model AE/SA-IDC.

Parameters necessary for the Aguilera work mode will be configured in this window.



- **Address.** It is the address the IDC will answer to in the network ARCNET. Range [1..31].

- **ARCNET speed.** Speed that communications by the port COM3 ARCNET RS-485 make. All equipments that make up the ARCNET network should be configured at the same speed.

    - **39 Kbps**
    - **78 Kbps**
    - **156 Kbps**
    - **312 Kbps**

- **COM1 (RS-232) Port.** This port will be used for connecting to a PC through the AGE43 Control Station software or AGE44 Remote Management of Installations through a RS-232 port. It should be configured with the same parameters as the equipment to be connected.

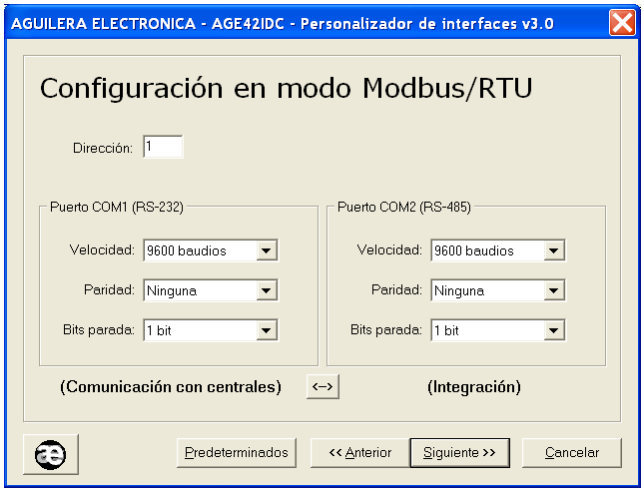
    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

- **COM2 (RS-485) Port.** This port will be used for connecting to a PC through the AGE43 Control Station software or AGE44 Remote Management of Installations through a RS-485 port. It should be configured with the same parameters as the equipment to be connected.

    - **Speed.** (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

2.6.2 MODBUS/RTU.

Parameters necessary for the Modbus/RTU work mode will be configured in this window.



- **Address:** It is the address the interface will answer to in the network Modbus. Range [1..255]

- **COM1 (RS-232) Port.** By default, this is the default port for the interface to communicate with the central unit. It should be configured with the same parameters as the port of the central unit to be connected.

    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

- **COM2 (RS-485) Port.** It is the default port for the interface to communicate with the master Modbus equipment. The configuration of this port should be the same as the other devices of the Modbus network.

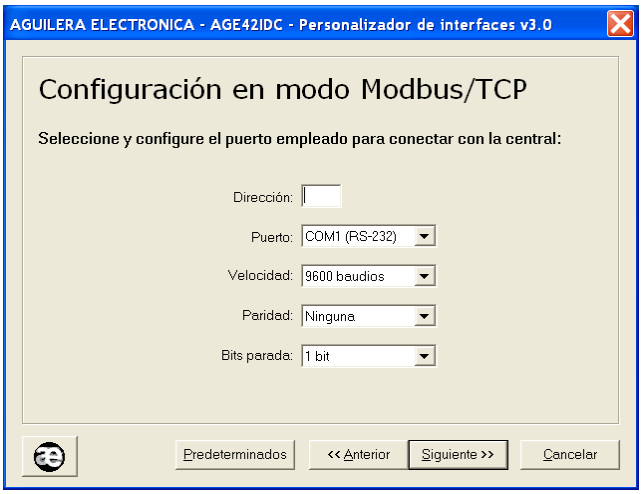
    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

- **Physical Interface.** Optionally the use of both ports can be exchanged in such a way that communications between master Modbus equipment and the interface are made via RS-232 and communications between the interface and the central unit are RS-485. This option can be selected by pressing the screen-printed key with two opposite arrows.

Once parameter selection has finished, the register configuration for MODBUS protocol is started, which is described in section 3. Parameter configuration of MODBUS protocol

2.6.3 MODBUS/TCP.

This operation mode is only available in the model AE/SA-GAT.
Parameters necessary for the Modbus/TCP work mode will be configured in this window.



- **Address.** It is the address the GAT will answer to in the network Modbus. Range [1..255]

- **Port.** This is the default port for the GAT to communicate with the central unit. It should be configured in the same way and with the same parameters as the port of the central unit to be connected.

    - COM1 (RS-232)
    - COM2 (RS-485)**.**

- **Speed.** (2400, 4800, 9600, 19200, 38400, 57600 bauds)

- **Parity.** (None, Even, Odd)

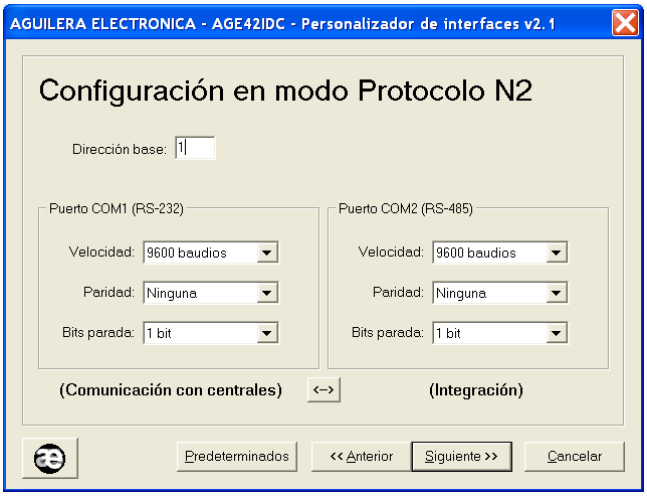
- **Stop Bits.** (1 bit, 2 bits)

Once parameter selection has finished, the register configuration for MODBUS protocol is started, which is described in section 3. Parameter configuration of MODBUS protocol

For the correct performance of the MODBUS/TCP mode, the Ethernet TCP/IP port should be configured. This process is described in section 6 Configuration of the Ethernet port. The operation mode of the micro server should be the appropriate one for this type of operation.

2.6.4 N2 PROTOCOL.

Parameters necessary for the work mode of the N2 Protocol will be configured in this window.



- **Address:** It is the address the interface in the N2 network will answer to Range [1..255]

- **Port COM1 (RS-232).** This is the default port for the interface to communicate with the central unit. It should be configured with the same parameters as the port of the central unit to be connected.

    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

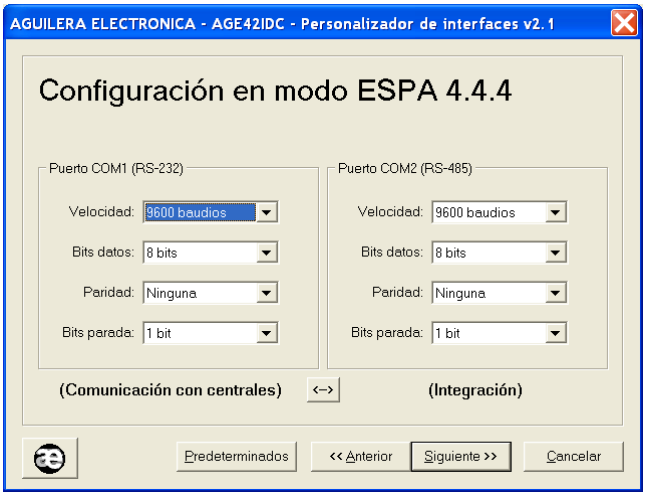
- **Port COM2 (RS-485).** This is the default port for the interface to communicate with the equipment with the N2 Protocol. Configuration of this port should be the same as other network devices.

    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

- **Physical Interface.** Optionally the use of both ports can be exchanged in such a way that communications between equipment with N2 protocol and the interface are made via RS-232 and communications between the interface and the central unit are RS-485. This option can be selected by pressing the screen-printed key with two opposite arrows.

2.6.5 ESPA 4.4.4.

Parameters necessary for the work mode of the ESPA 4.4.4 Protocol will be configured in this window.



- **Port COM1 (RS-232).** This is the default port for the interface to communicate with the central unit. It should be configured with the same parameters as the port of the central unit to be

    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Bits data**. (7 bits, 8 bits)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

- **Port COM2 (RS-485).** This is the default port for the interface to communicate with the equipment with ESPA 4.4.4 Protocol. Configuration of this port should be the same as the device to be connected.

    - **Speed**. (2400, 4800, 9600, 19200, 38400, 57600 bauds)
    - **Bits data**. (7 bits, 8 bits)
    - **Parity.** (None, Even, Odd)
    - **Stop Bits.** (1 bit, 2 bits)

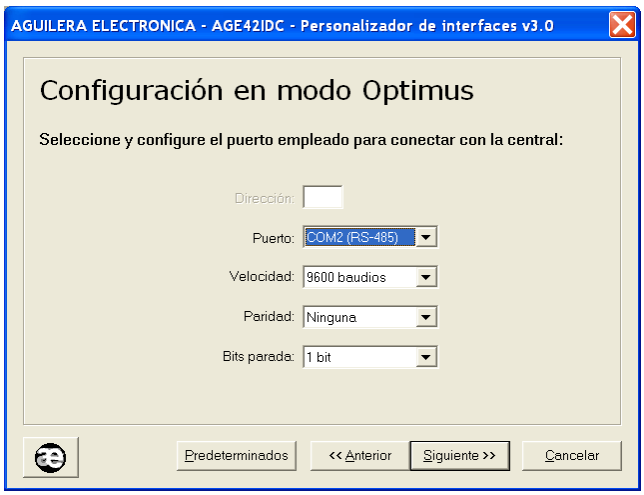
- **Physical Interface.** Optionally the use of both ports can be exchanged in such a way that communications between equipment with ESPA 4.4.4 protocol and the interface are made via RS-232 and communications between the interface and the central unit are RS-485. This option can be selected by pressing the screen-printed key with two opposite arrows.

Once parameter selection has finished, the register configuration for the ESPA 4.4.4 protocol is started, which is described in section 4. Parameter configuration of ESPA 4.4.4 protocol.

2.6.6 OPTIMUS.

This operation mode is only available in the model AE/SA-GAT.

Parameters necessary for the work mode of the OPTIMUS Protocol will be configured in this window.



- **Port.** This is the default port for the GAT to communicate with the central unit. It should be configured in the same way and with the same parameters as the port of the central unit to be connected.
    - COM1 (RS-232)
    - COM2 (RS-485)**.**
- **Speed.** (2400, 4800, 9600, 19200, 38400, 57600 bauds)
- **Parity.** (None, Even, Odd)
- **Stop Bits.** (1 bit, 2 bits)

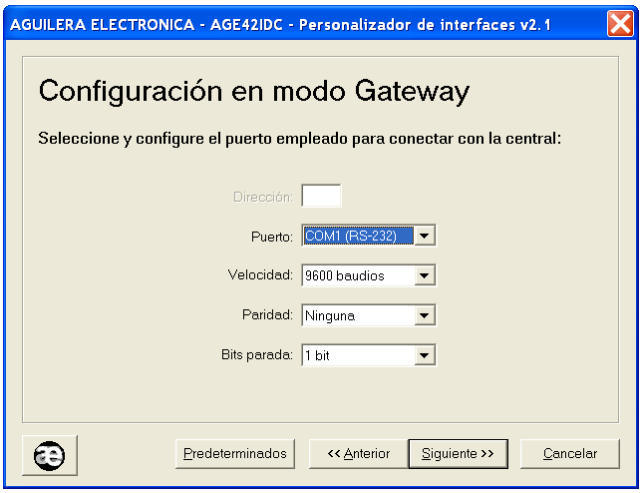
Once parameter selection has finished, the register configuration for the OPTIMUS protocol is started, which is described in section 5 Parameter configuration of the OPTIMUS Protocol.

For the correct performance of the MODBUS/TCP mode, the Ethernet TCP/IP port should be configured. This process is described in section 6 Configuration of the Ethernet port. The operation mode of the micro server should be the appropriate one for this type of operation.

2.6.7 GATEWAY.

This operation mode is only available in the model AE/SA-GAT.

Parameters necessary for the GATEWAY work mode will be configured in this window providing the central unit with TCP/IP connectivity.



- **Address.** No use at present.

- **Port.** This is the default port for the GAT to communicate with the central unit. It should be configured in the same way and with the same parameters as the port of the central unit to be connected.

    - COM1 (RS-232)
    - COM2 (RS-485)**.**

- **Speed.** (2400, 4800, 9600, 19200, 38400, 57600 bauds)

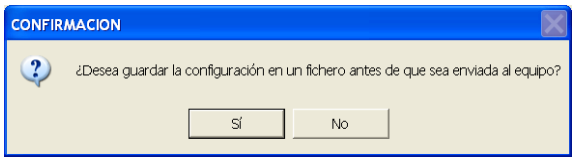
- **Parity.** (None, Even, Odd)

- **Stop Bits.** (1 bit, 2 bits)

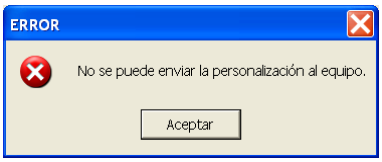
For the correct performance of the MODBUS/TCP mode, the Ethernet TCP/IP port should be configured. This process is described in section 6 Configuration of the Ethernet port. The operation mode of the micro server should be the appropriate one for this type of operation.

2.7 END OF THE PROCESS.

After pressing the button “Next” on the previous screen, the programme verifies that data entered are correct, if so, confirmation for being saved in a file is requested.

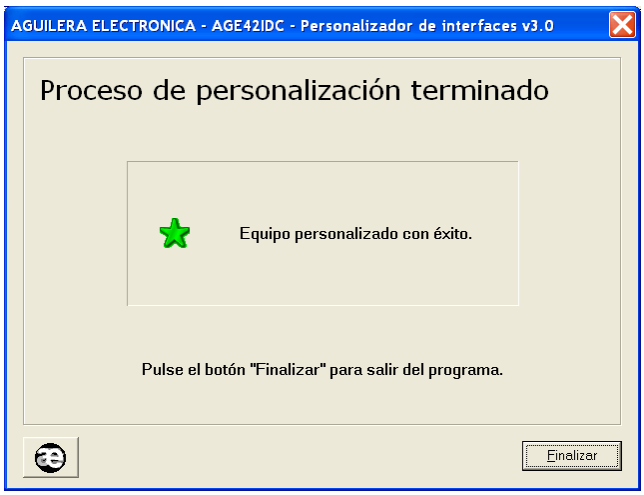


Then, it tries to dump the customization onto the Interface. If errors in the dumping or writing are produced, an error message is shown on the screen.



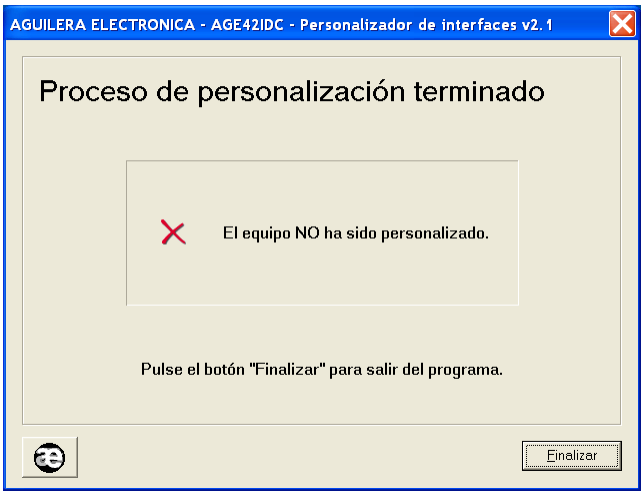
The error message could also be produced if the Interface hardware[2] version is not compatible with the customization. Please, contact Aguilera Electrónica for the hardware updating.

If the process finishes successfully, verifying its writing to check if it is correct, the following confirmation window is shown.



If the configuration process has been cancelled, this window is shown indicating that customization has not been modified, keeping the one which was previously programmed.

[2] Change in the EEPROM memory.



In both cases, we exit the programme by pressing the “Finish” button.

3 PARAMETER CONFIGURATION OF MODBUS PROTOCOL.

If in the operation mode the MODBUS/RTU or MODBUS/TCP operation modes have been configured, it is necessary to configure some parameters for the correct interpretation and implementation of the protocol.

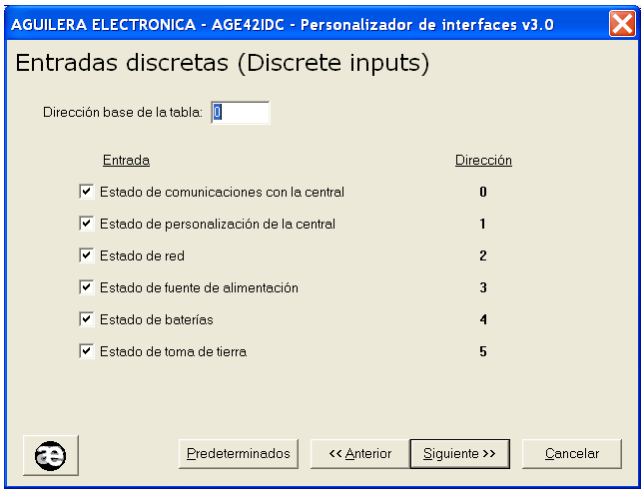
By default, some default values are applied and modification will only be necessary if needed to be adapted to the implementation carried out by the system integrator.

If the option **"Use the classic customization for Modbus"** has been selected, values used in version 1.0 of the Interface will be applied.

For further information, please consult the implementation manual of Modbus protocol in the AE/SA-IDC y AE/SA-GAT Communication Interface equipments reference Ae-man-327-0.0

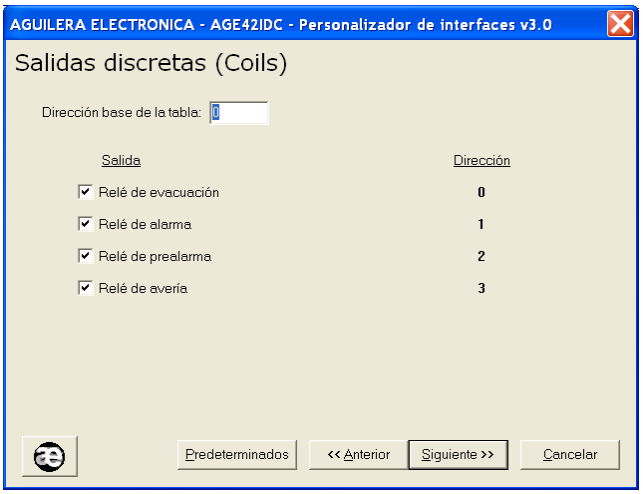
3.1 DISCRETE INPUTS. (DISCRETE INPUTS).

It allows to define the base Address of the table as well as the status that we want to be available for the master Modbus equipment.



3.2 DISCRETE OUTPUTS. (COILS).

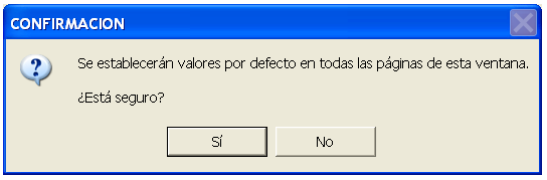
It allows to define the base Address of the table as well as the outputs that we want to be available for the master Modbus equipment.



3.3 INPUT REGISTERS (INPUT REGISTERS).

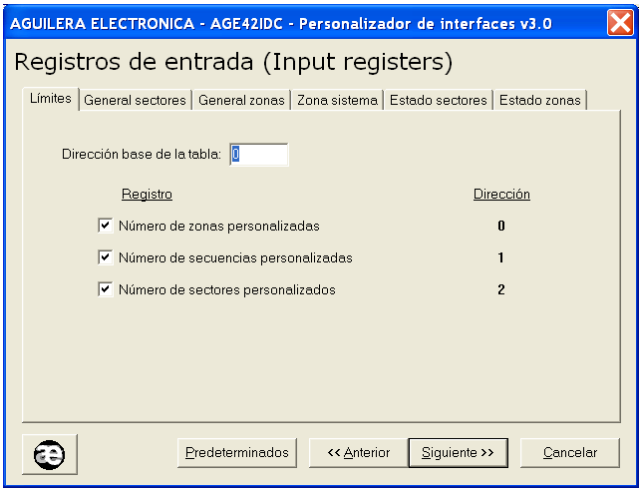
It allows to define the different types of registers, organized in pages according to the type

With the option “By default” default values are established.



3.3.1 LIMITS.

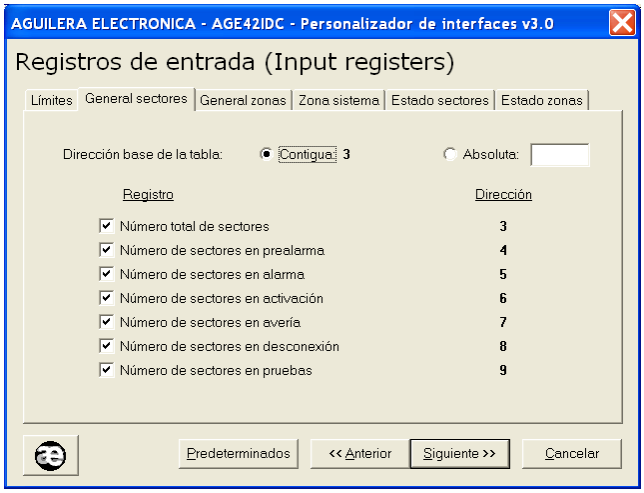
It allows to define the base address of the table of customization limits as well as registers we want to be available for the master Modbus equipment.



Any address can be customized but in order to allow the compatibility with installations with equipments with firmware series 1, the absolute address “0” should be assigned.

3.3.2 GENERAL: SECTORS.

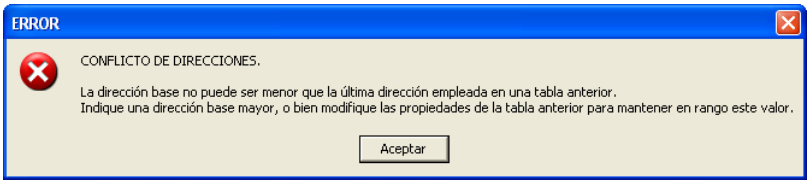
It allows to define the base address of the sub-table of general counters of sectors as well as registers we want to be available for the master Modbus equipment.



The sub-table address may be adjacent to the limit sub-table or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address “20” should be assigned.

In case of conflict of addresses produced by overlapping, an error message will be shown.

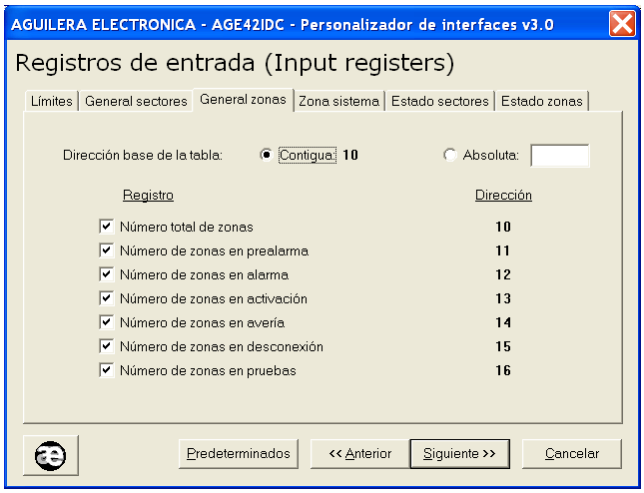


3.3.3 GENERAL: ZONES.

It allows to define the base address of the sub-table of general counters of zones, as well as registers we want to be available for the master Modbus equipment.

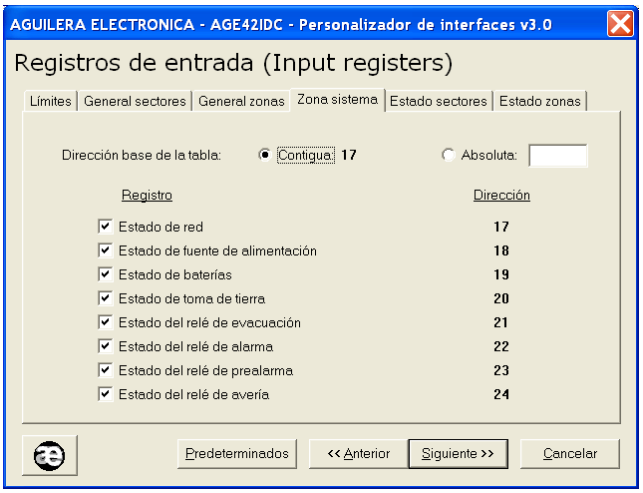
The sub-table address may be adjacent to the sub-table of general counters of sectors or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address “50” should be assigned.



3.3.4 SYSTEM ZONE.

It allows to define the base address of the sub-table of registers of the system zone, as well as registers we want to be available for the master Modbus equipment.

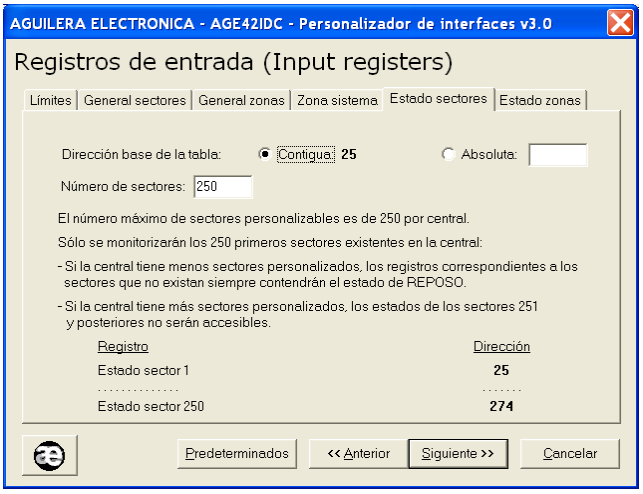


The sub-table address may be adjacent to the sub-table of general counters of zones or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address “100” should be assigned.

3.3.5 SECTOR STATUS.

It allows to define the base address of the sub-table of registers of the sector status, as well as the number of registers we want to be available for the master Modbus equipment.

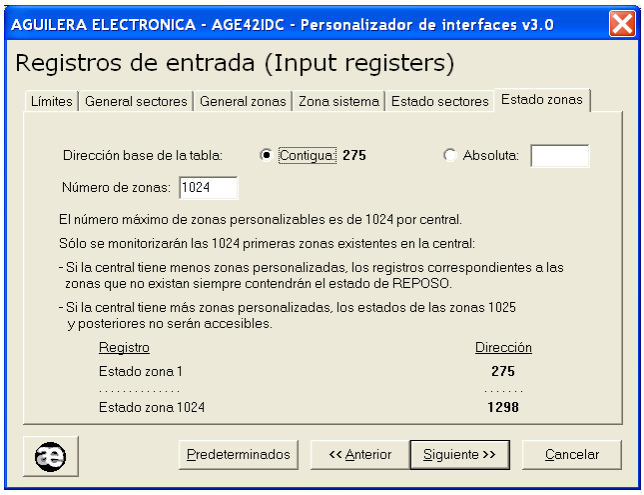


The sub-table address may be adjacent to the sub-table of register of the system zone or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address “200” should be assigned.

3.3.6 ZONE STATUS.

It allows to define the base address of the sub-table of registers of the zone status, as well as the number of registers we want to be available for the master Modbus equipment.



The sub-table address may be adjacent to the sub-table of register of the sector status or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

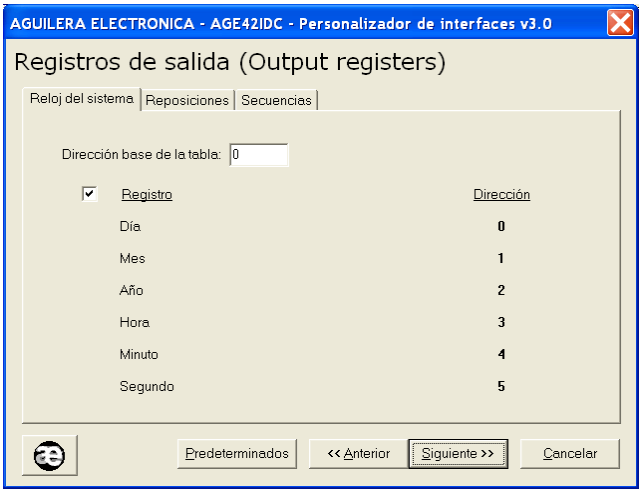
To allow compatibility with installations with equipments with firmware series 1, absolute address “1000” should be assigned.

3.4 OUTPUT REGISTERS (HOLDING REGISTERS).

It allows to define the different types of registers, organized in pages according to the type.

3.4.1 SYSTEM CLOCK.

It allows to define the base address of the table of system clock, as well as the registers we want to be available for the master Modbus equipment.



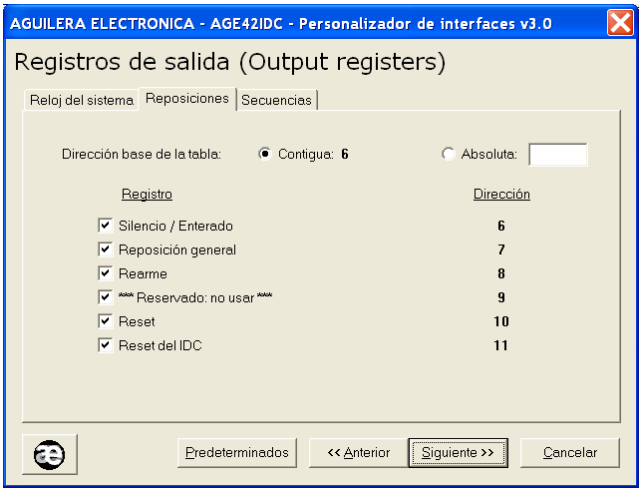
Any address can be customized, but the absolute address "0" should be assigned to allow the compatibility with installations with equipments with firmware series 1.

3.4.2 RESETTING.

It allows to define the base address of the sub-table of resetting, as well as the registers we want to be available for the master Modbus equipment.

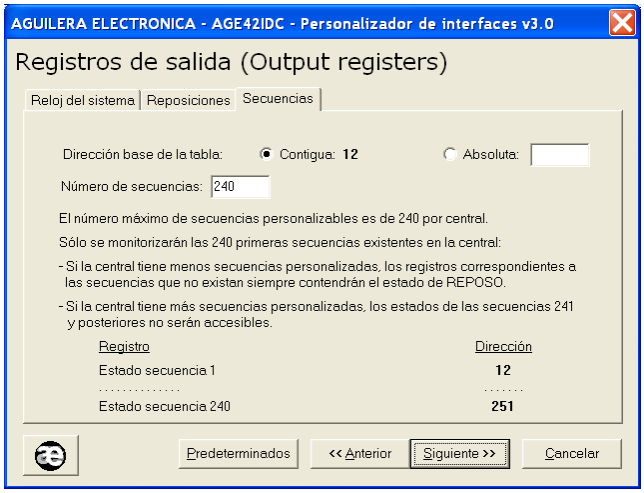
The sub-table address may be adjacent to the sub-table of the system clock or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address "100" should be assigned.



3.4.3 SEQUENCES.

It allows to define the base address of the sub-table of sequences, as well as the number of registers we want to be available for the master Modbus equipment.

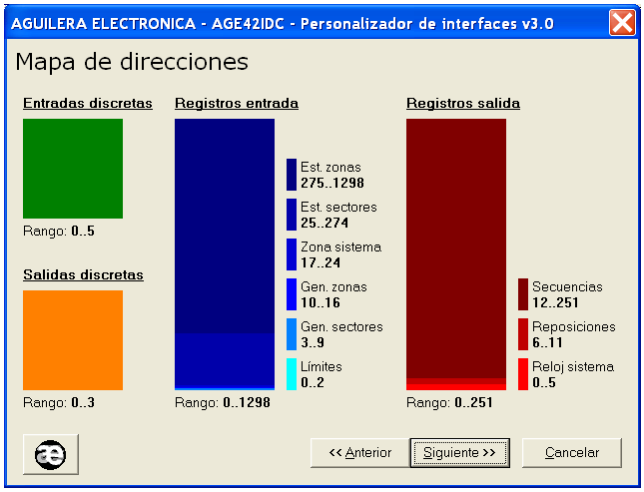


The sub-table address may be adjacent to the sub-table of resetting or an absolute address can be indicated. In such case, addresses for each register are automatically updated.

To allow compatibility with installations with equipments with firmware series 1, absolute address “1000” should be assigned.

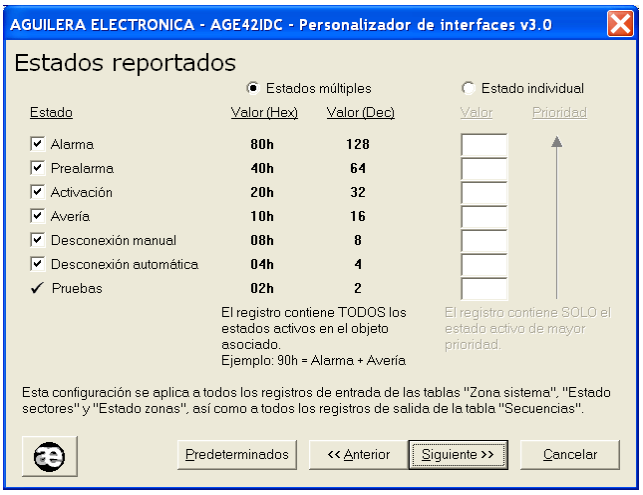
3.5 ADDRESS MAP.

A graphic overview of the use of the registers configured for the Modbus protocol is shown.



3.6 REPORTED STATUS.

It allows to define which status are sent for each register, if they can be multiple or single and, in this case, the value to be taken.



Once parameters have been configured, the file is saved and recorded in the communication interface.

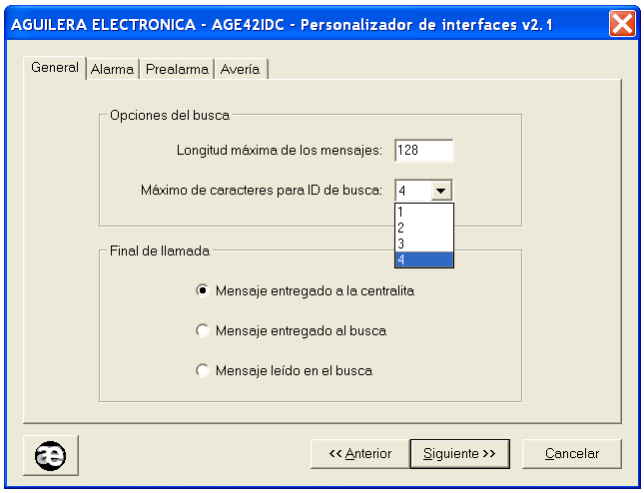
4 PARAMETER CONFIGURATION OF ESPA 4.4.4 PROTOCOL

If in the operation mode the ESPA 4.4.4 work mode has been configured, it is necessary to configure some parameters for the correct interpretation and implementation of the protocol.

By default, some default values are applied and modification will only be necessary if needed to be adapted to the implementation carried out by the system integrator.

4.1 GENERAL.

It allows to define general parameters of Pager Options and Call End.



4.1.1 PAGER OPTIONS

It allows to define:

- Maximum length of messages, from 1 to 128 characters.
- Maximum of characters for the Identification Code of pagers or group of pagers. Value from 1 to 4 characters.

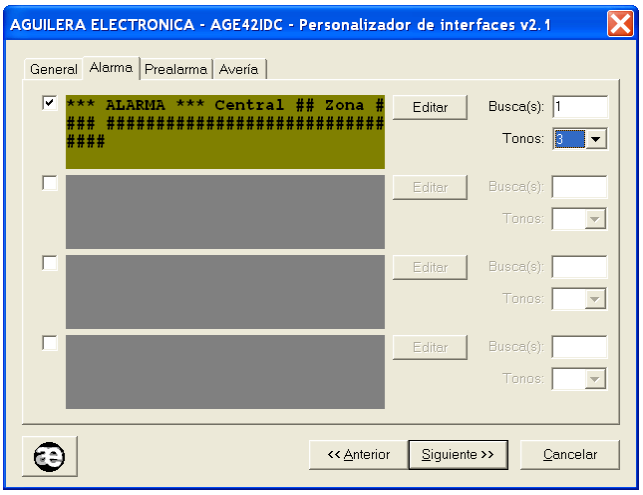
4.1.2 CALL END.

It allows to define the event the call process will end with, being:

- Message delivered to the control unit.
- Message delivered to pager.
- Message read in pager.

4.2 ALARM.

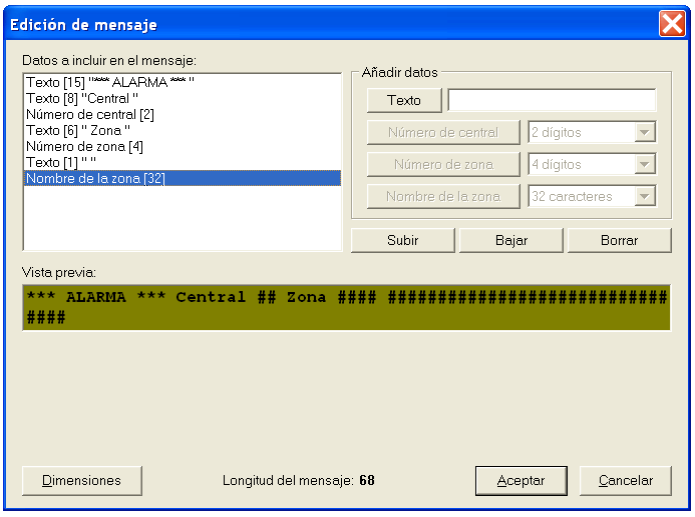
It allows to define the Alarm messages, pagers or group of pagers that will receive them and the number of alert tones.



4 different types of alarm messages can be received, which can be activated according to the needs and whose content may be edited.
The field Pager(s) shows the identification code of pager or groups of pagers that will receive the message.
The Tone field shows the number of acoustic alerts which will be received on the pager.

4.2.1 OUTPUTTING MESSAGES.

When pressing the “Edition” key, the different fields to be included in each message can be edited, until completing the maximum capacity defined, which can be:



- **Text**, free group of alphanumeric characters, defined on the window, and which are added when pressing the “text” key. To separate the different fields, space texts are needed to be added.

- **Number of Central Unit**, composed of 1 or 2 digits. This field can only be added once in each message, it cannot be selected again once used.

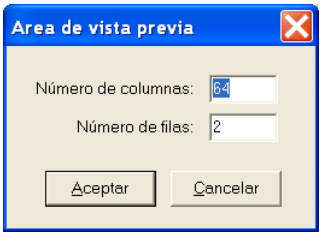
- **Number of zone**, composed of from 1 to 4 digits. This field can only be added once in each message, it cannot be selected again once used.

- **Name of zone**, composed of from 1 to 32 characters. This field can only be added once in each message, it cannot be selected again once used.

A window with the different fields being added to the message and the number of characters they take are shown on the top left side. The order of the fields can be modified through the "**Up**" and "**Down**" buttons, or they can be eliminated through the "Eliminate" button.

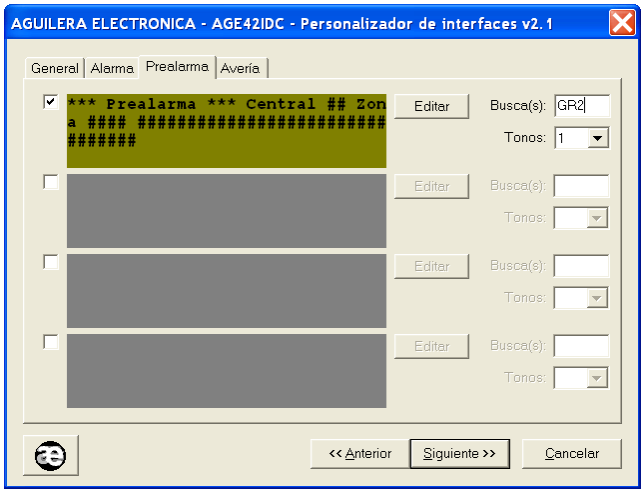
A counter with the total length of the message defined is shown at the lower part.

A Preview window is shown on the lower part, whose dimensions can be edited by pressing the "**Dimensions**" button, to simulate the pager window where the message will be received.



4.3 PRE-ALARM.

It allows to define the Pre-alarm messages, pagers or groups of pagers that will receive them and the number of alert tones.

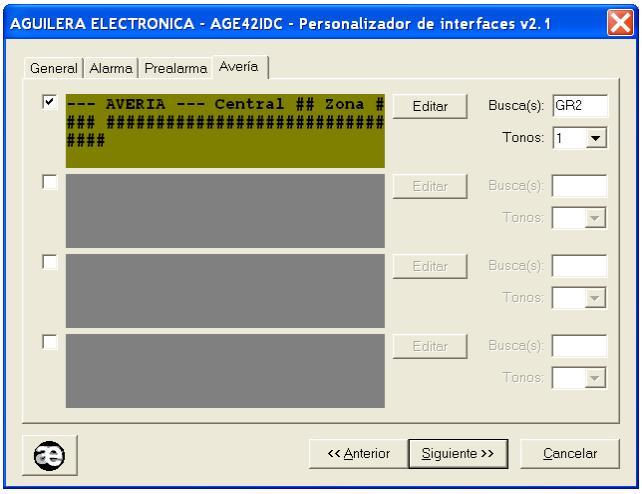


4 different types of alarm messages can be received, which can be activated according to the needs and whose content may be edited.

The field Pager(es) shows the identification code of pager or pager groups that will receive the message. The Tone field shows the number of acoustic alerts which will be received in the pager.

4.4 FAILURE.

It allows to define the Failure messages, pagers or pager groups that will receive them and the number of alert tones.



4 different types of failure messages can be received, which can be activated according to the needs and whose content may be edited.

The field Pager(es) shows the identification code of pager or pager groups that will receive the message. The Tone field shows the number of acoustic alerts which will be received in the pager.

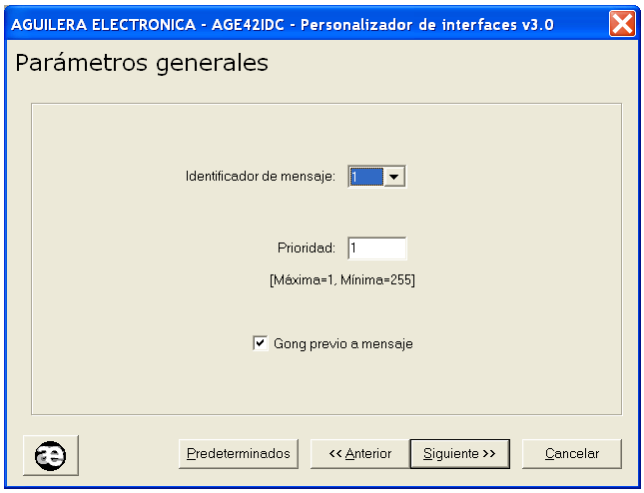
5 CONFIGURATION PARAMETERS OF THE OPTIMUS PROTOCOL.

If in the operation mode the OPTIMUS work mode has been configured, it is necessary to configure some parameters for the correct interpretation and implementation of the protocol.

By default, some default values are applied and modification will only be necessary if needed to be adapted to the implementation carried out by the system integrator.

5.1 GENERAL PARAMETERS.

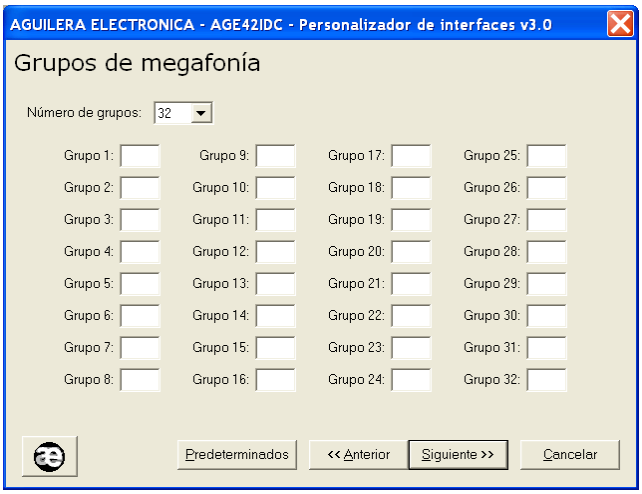
Parameters relating to the public address message, which will be played in the Optimus equipment when producing any alarm in the algorithmic central unit, are configured in this window.



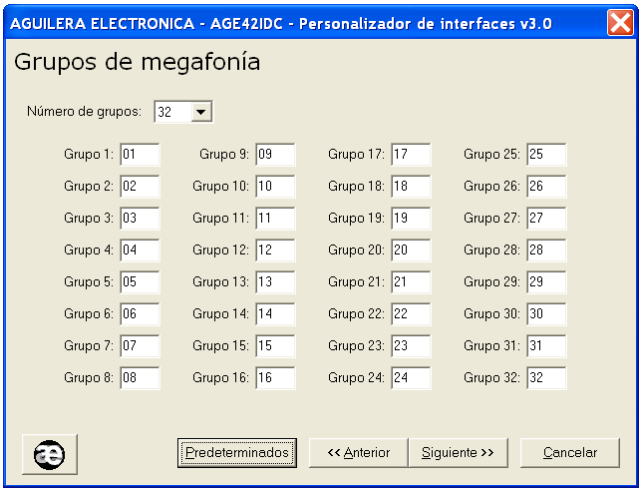
- **Identifier** Indicates the message pre-recorded in the public address equipment which should be played in case of alarm.
- **Priority** The urgency level of the message.
- **Prior Gong** Mark this option for the public address message playing to be preceded by an attention sound.

5.2 PUBLIC ADDRESS GROUPS.

The number of public address groups to be managed, a maximum of 32 groups, will be shown on this window.
Next, the same name they have been created with in the Optimus public address system will be assigned.



By pressing the “Predetermined” button the name is automatically assigned to the groups enabled.

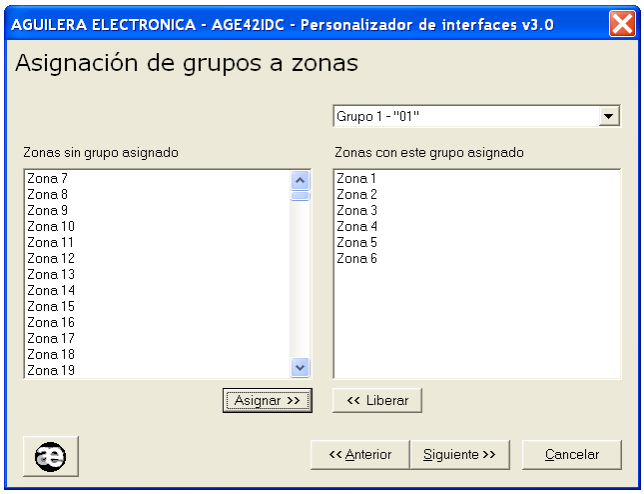


5.3 ASSIGNMENT OF GROUPS TO ZONES.

In this step, we should associate each zone of the algorithmic central unit to a specific public address group. Each zone can only be associated to one public address group.

The window allows to manage 1,024 zones, which is the maximum number of zones that can exist in an algorithmic central unit.

We can leave zones without being assigned to any group, either because such zones do not exist in the customization of the central unit or because we do not want the change to alarm of those zones lead to the activation of the public address in any group.



The window allows to select many zones and assign them to the currently selected group in one single operation.
Press the “Next” button once zones have been assigned to their corresponding public address groups,

6 CONFIGURATION OF THE ETHERNET PORT.

AE/SA-GAT communication interface is equipped with an Ethernet TCP/IP Port, and can use a 10/100 Ethernet MiiNePort E1 by Moxa or XPort by Lantronix transceiver. The model used is specified on the equipment outer label.

For this Port to be operative, it is necessary to assign an IP Address to it in the Ethernet network where it will be connected.

The easiest method for configuring the TCP/IP micro server of the Interface is by means of a WEB browser. In order to do that, we will open our browser and enter the micro server IP Address.

The IP Address assigned to the AE/SA-GAT equipment is **10.0.0.250** by default.

If this Address has been modified, we do not know the real IP Address that the AE/SA-GAT equipment has been assigned with, we can use the application:

- **NPort Search Utility** for models with MiiNePort by **Moxa** micro server,
- **Device Installer** for models with XPort by **Lantronix** micro server,

in order to perform a search in the network and find it.

The operation mode to be programmed will vary according to the work mode we have selected in the configuration of the work mode of the AE/SA-GAT with the AGE42IDC programme. Choose the appropriate mode for correct operation.

6.1 CONFIGURATION OF THE MOXA MIINEPORT MICRO SERVER.

The way to perform the configuration of the Moxa MiiNePort E1 micro server and applications needed for its correct operation are described in the section below. If the interface AE/SA-GAT is equipped with a Lantronix XPort micro server, please refer to section 6.2.

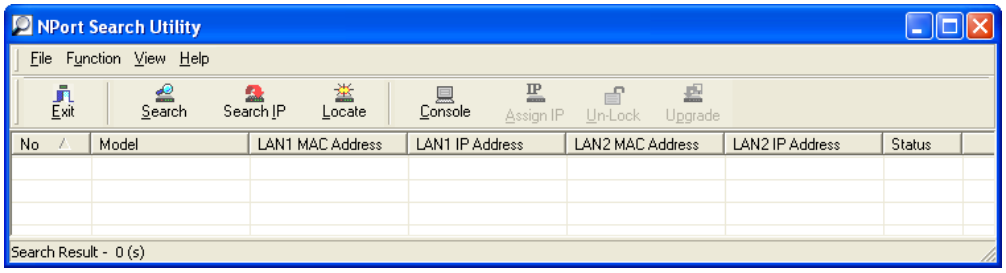
6.1.1 NPORT SEARCH UTILITY.

This application allows to identify the IP Address assigned to the AE/SA-GAT equipment.
It is included in the CD that is attached to the AE/SA-GAT, and can be found in the Utilities\Moxa directory. Accessing the latest application version from the Moxa web is also possible.

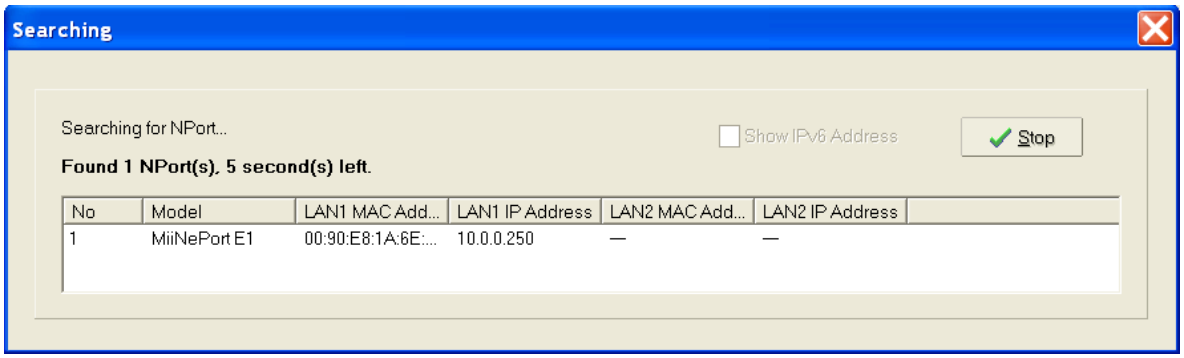
Download link -→ http://www.Moxa.com/support/download.aspx?d_id=1358

For the correct operation of the application, the PC firewall from where is being executed, may be temporally disconnected.
Once the Nsearch Port Utility has been installed, the following steps should be observed:

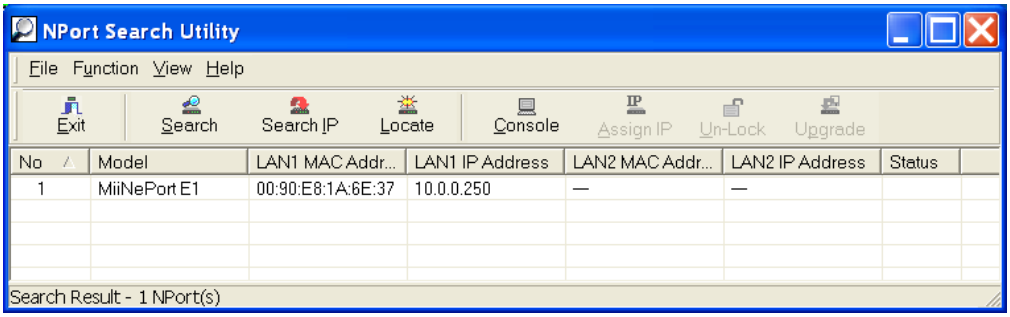
- Feed the AE/SA-GAT equipment. Check that 3.3V and 5V power LEDs are illuminated.
- Connect the Ethernet Port of the PC to the AE/SA-GAT equipment. The green LED of the MiiNePort E1 of the micro server should be illuminated.
- Execute **Nport Search Utility**. The following screen should be shown:



- Press the“**Search**” icon, and the search for devices will start showing them on a new window, being added to the list later.



- The device found (there should be only one) is added to the list of the main window.



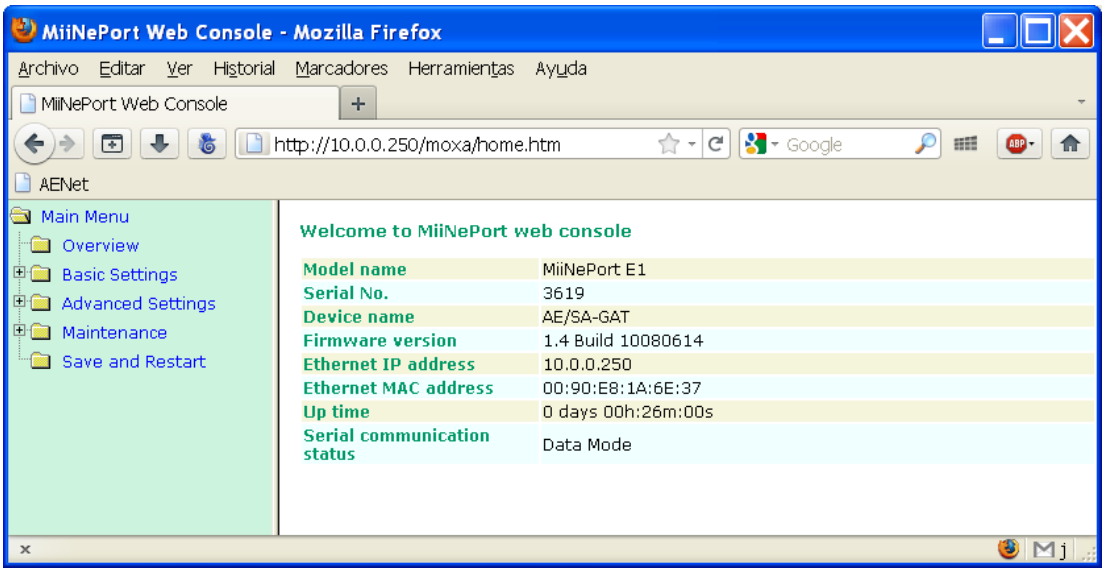
- Data shown on the LAN1 IP Address corresponds to the present IP Address of the AE/SA-GAT Interface.

Double-click the device to enter in the configuration window through the web browser installed in the PC.

It is also possible to search all devices connected to the Ethernet network where we are connected to. This is very useful in installations where there are two or more equipments connected.

6.1.2 CONFIGURATION OF THE MICRO SERVER

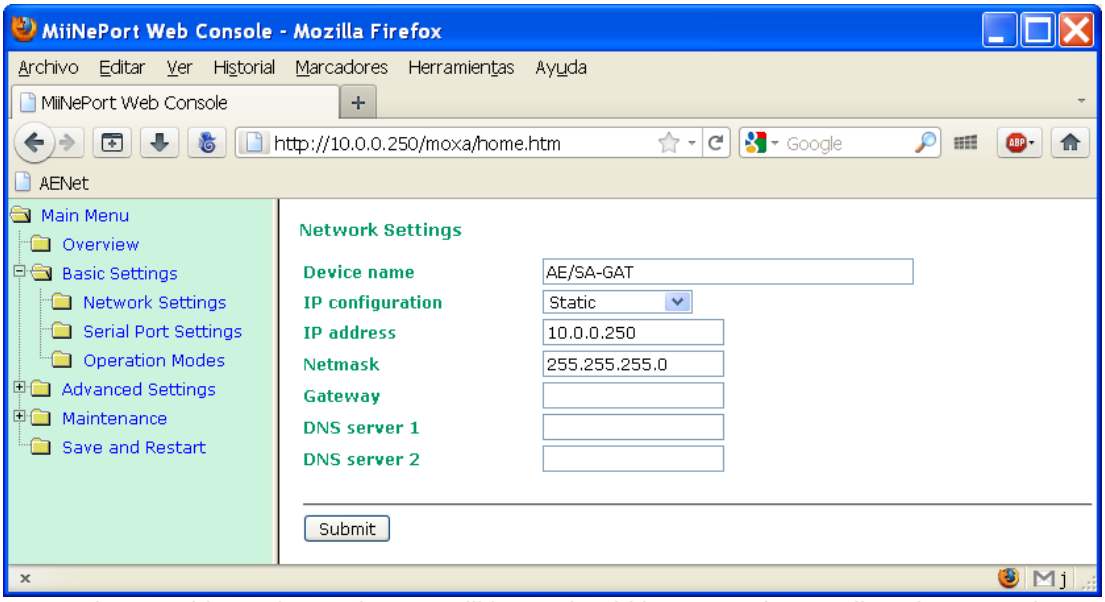
To have access to the micro server configuration, the browser should be opened and the assigned IP Address entered.
The following window with a general overview of the equipment present configuration will be displayed:



6.1.2.1 NETWORK CONFIGURATION.

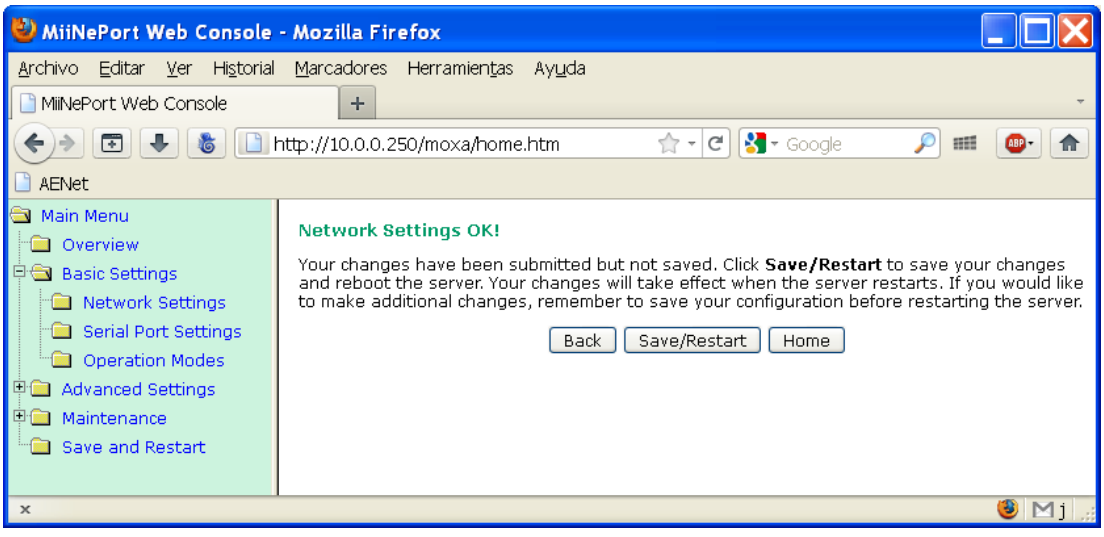
Firstly, information corresponding to "*Basic Settings*" should be expanded by clicking on the folder on the left panel.

We will access the configuration page of the network parameters of the equipment by selecting the *"Network Settings"* option on the left panel.



On this page the IP Address the equipment will have should be entered, as well as the network mask.
The rest of parameters are not usually necessary but it is appropriate to confirm it with the network administrator where the Communication Interface is going to be installed.

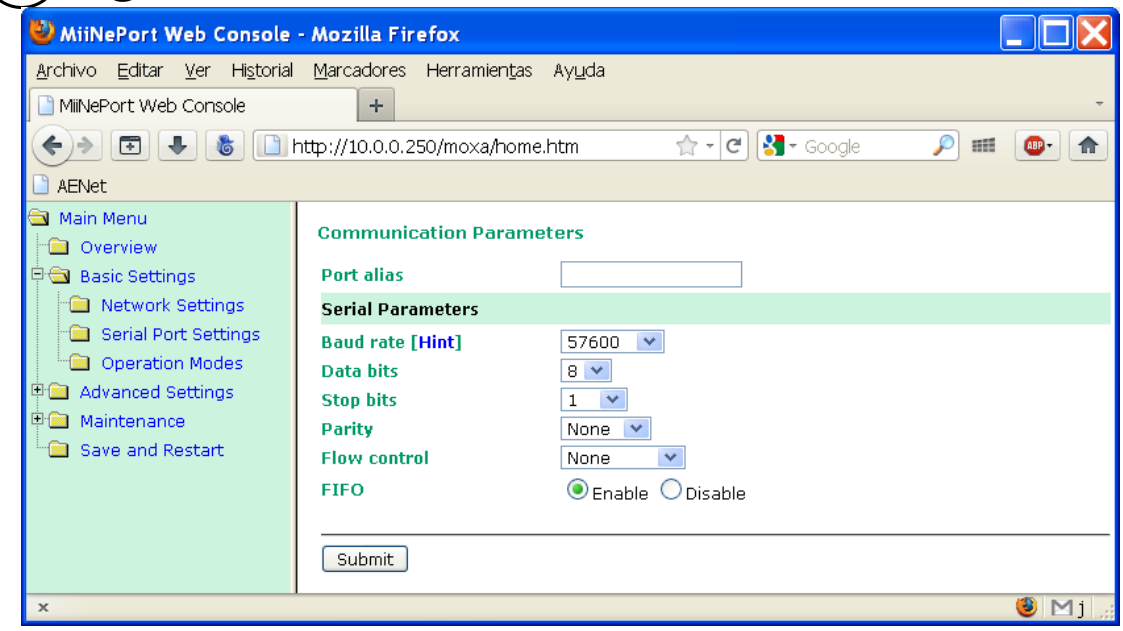
After entering the needed data, press the *"**Submit** "* button and the following window will be shown:



Press the "**Back**" button to continue the modification of parameters.

6.1.2.2 CONFIGURATION OF THE SERIAL PORT.

Next, we should check that the configuration of the serial Port of the micro server is correct.
In order to do that, we will select the *"**Serial Port Settings**"* option on the left panel and we will ensure that all data is configured as shown in the window below:



- Serial Parameters
  - Baud Rate: 57600
  - Data bits: 8
  - Stop bits: 1
  - Parity: None
  - Flow control: None
  - FIFO: Enable

👁 This serial Port is an internal Port of the micro server equipment. There is no relationship with the serial Port configuration of the Interface that as we have seen above, it is carried out through the AGE42IDC Customizer and it is not related at all with the configuration of the serial Port of the algorithmic central unit the Interface will be connected to.

👁 Modification of data will lead to the incorrect operation of the AE/SA-GAT equipment.

If any data has been modified, press "**Submit**" and then "**Back**" to continue with the parameter modification.

6.1.2.3 OPERATION MODES.

The mode needed for operating correctly should be selected according to the work mode selected on the AE/SA-GAT Interface through the AGE42IDC programme.

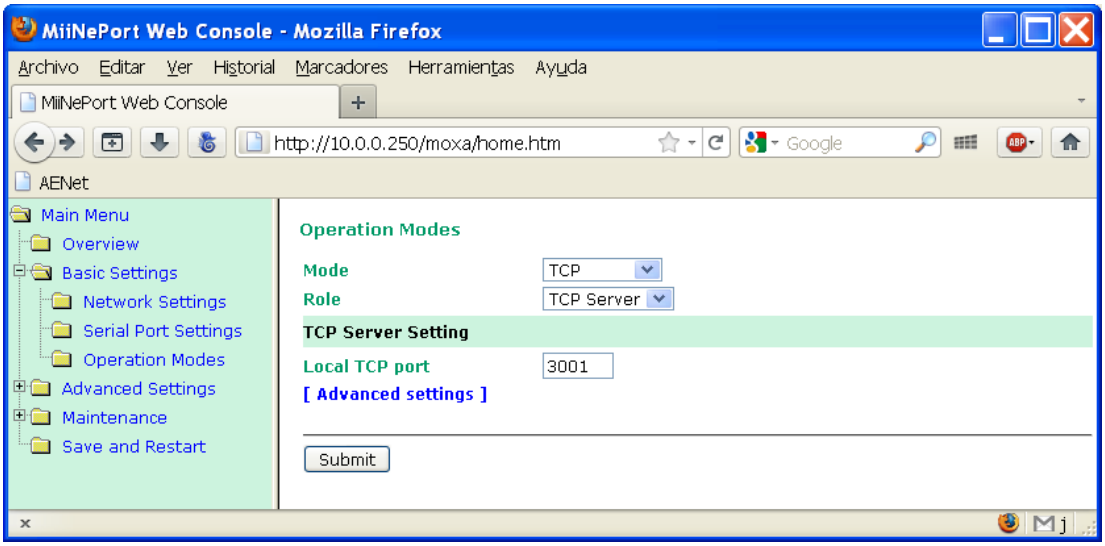
These are the possible configurations:

AE/SA-GAT work mode	Micro server operation mode
MODBUS/TCP	TCP Server
OPTIMUS	TCP Client
GATEWAY	TCP Server

6.1.2.3.1 TCP SERVER.

This operation mode should be programmed for the operation of AE/SA-GAT in MODBUS/TCP mode and GATEWAY. This is the programmed default mode.

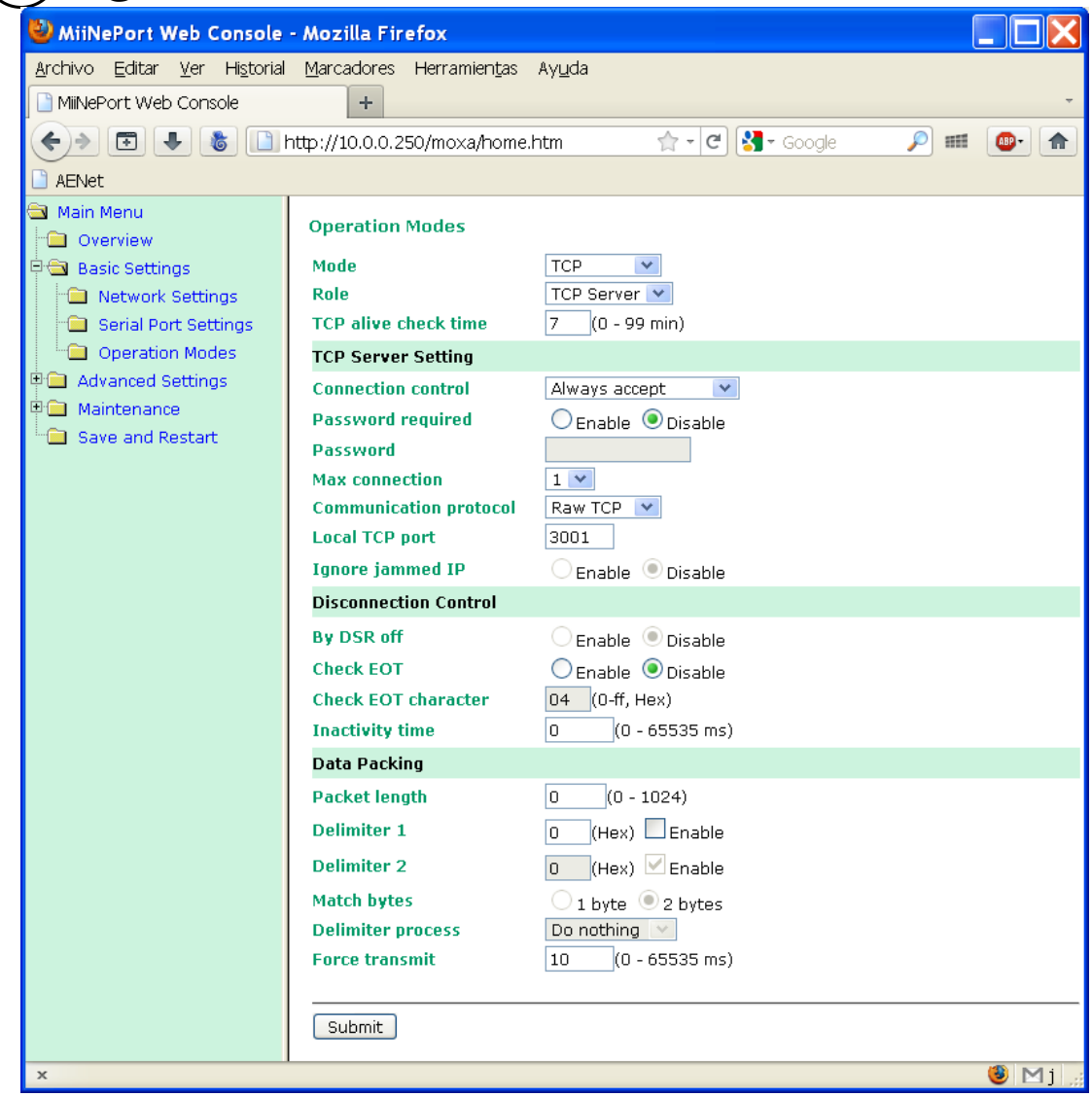
Select the *"**Operation Modes**"* option on the left panel and the following window will be displayed:



The following values should be selected:

- **Mode:** TCP
- **Role:** TCP Server
- **Local TCP port:** 3001 or the Port we want to use.

Next, press "***Advanced settings***" to modify some parameters ensuring that they correspond with the ones of the image.



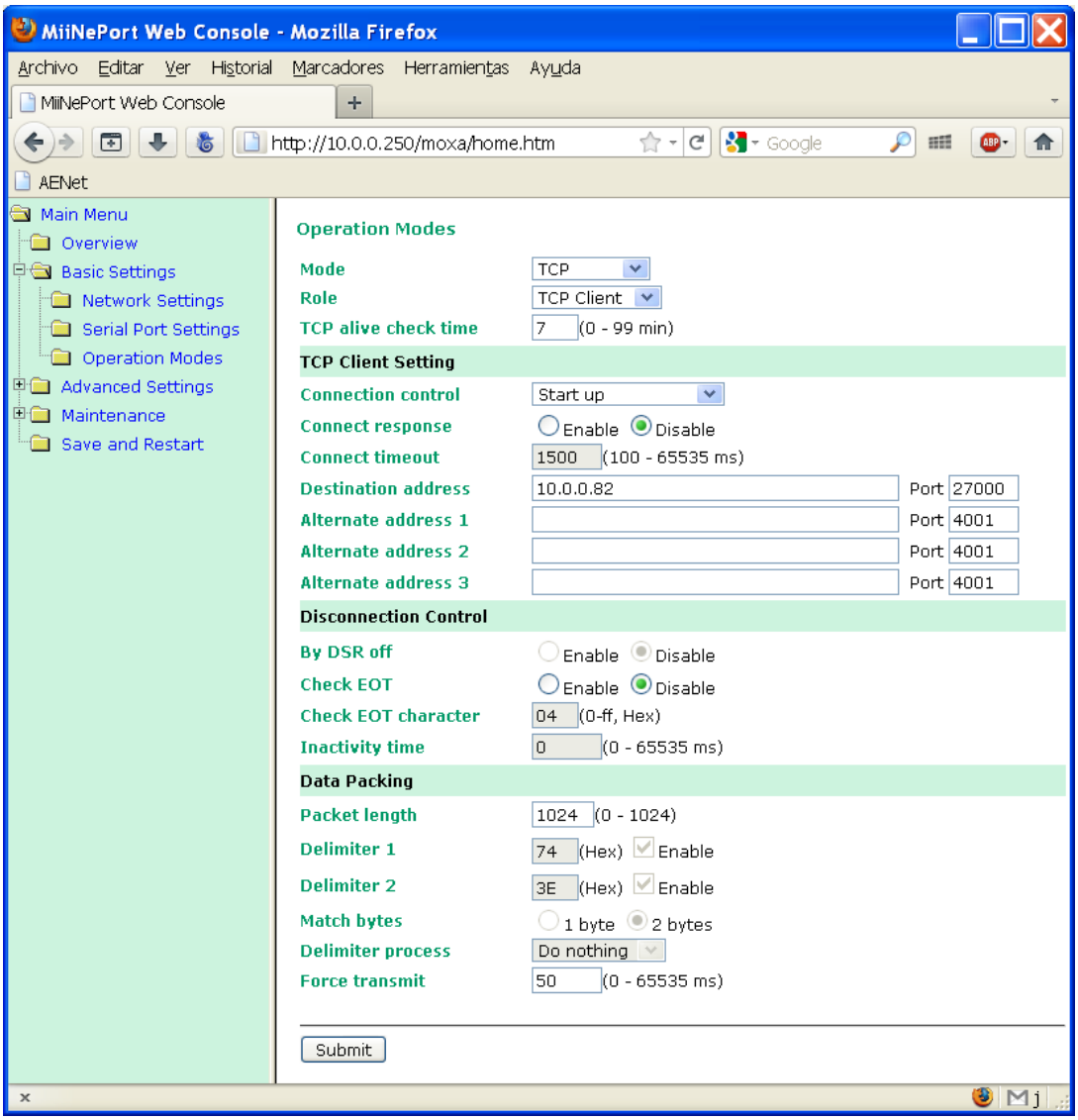
Next, press "***Advanced settings***" to modify some parameters ensuring that they correspond with the ones of the image.

If any data has been modified, press "**Submit**" and then "**Back**" to continue with the parameter modification.

6.1.2.3.2 TCP CLIENT.

This operation mode should be programmed for the AE/SA-GAT operation in OPTIMUS mode.

Select the *"**Operation Modes**"* option on the left panel and the following screen will be shown which can be enlarged by pressing "***Advanced settings***".



These are the parameters to be modified:

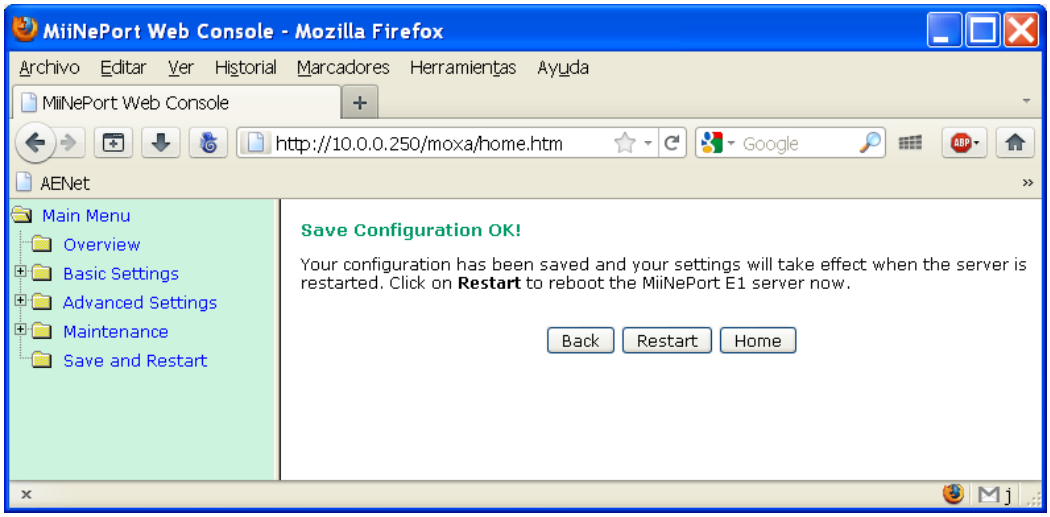
- **Mode** Select "TCP"
- **Role** Select "TCP Client"
- **Connection Control** Select "Start up" for the equipment to be automatically connected with the Optimus equipment when starting.
- **Destination address** Enter the IP Address of the Optimus public address equipment. The Port should be **27000.**
- **Packet length** Select the maximum: 1.024
- **Force Transmit** Enter 50 ms.

If any data has been modified, press "**Submit**" and then "**Back**" to continue with the parameter modification.

6.1.2.4 SAVING DATA AND START-UP

Once the micro sever configuration has finished, configuration data should be saved and the equipment restarted.

Select "**Save and Restart"** on the left panel for changes to take effect. The following message will be shown:



Click on "**Restart**" to reboot the equipment

After rebooting, the micro server will start to operate with the configuration entered.

6.2 CONFIGURATION OF THE LANTRONIX XPORT MICRO SERVER.

The way to carry out the configuration of the Lantronix XPort micro server and applications required are described in this present section.
If the AE/SA-GAT Interface is equipped with a Moxa MiiNePort E1 micro server, please consult section 6.1.

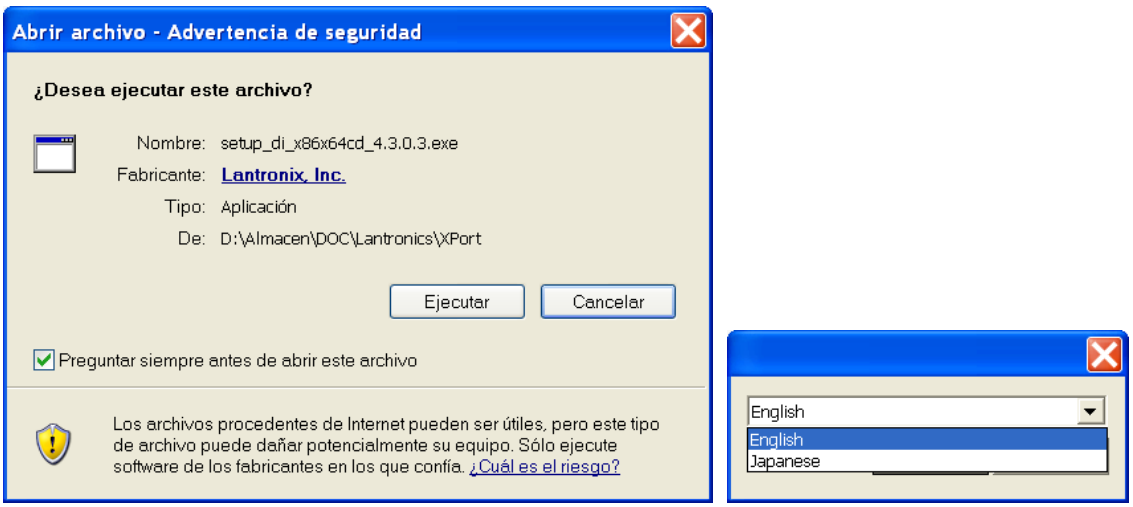
6.2.1 DEVICE INSTALLER.

This application allows to identify the IP Address assigned to the AE/SA-GAT equipment.

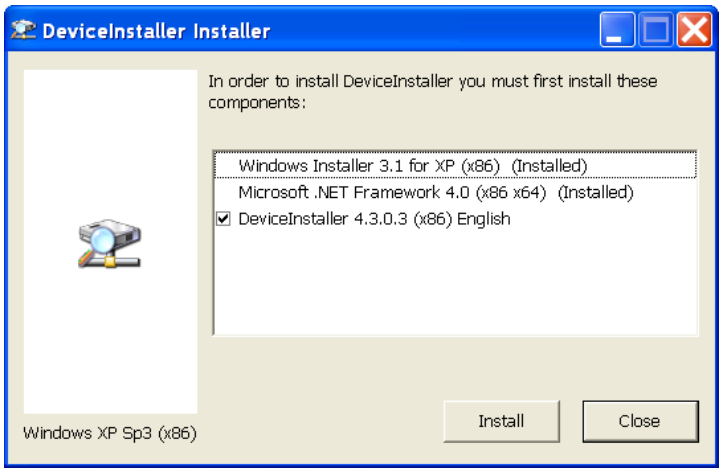
It is included in the CD accompanying the AE/SA-GAT which can be found in the Utilities/Lantronix directory. It is also possible to access the last version of the application from the Lantronix web.

Download link -→setup_di_x86x64cd_4.3.0.3.exe

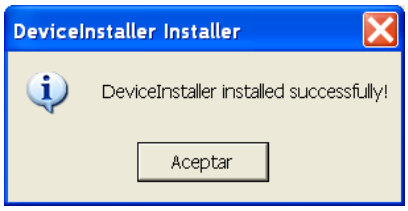
When executing the setup_di_x86x64cd_4.3.0.3.exe file the installation will start.



For its correct operation, some Microsoft programmes are needed to be installed. If not installed, it is shown on a window and then installation starts. The computer should be provided with the Windows XP Operating System or higher (Vista, Windows 7, etc).



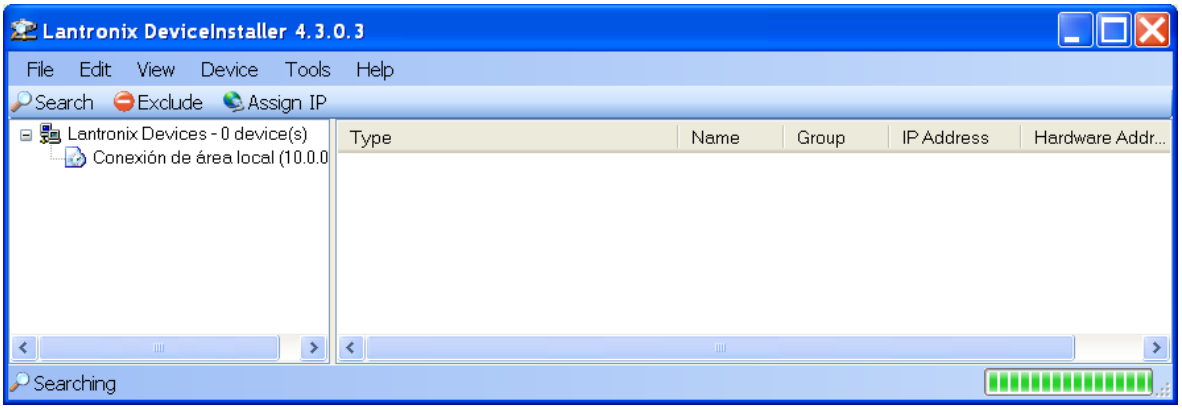
All screens shown until finishing the installation should be accepted.



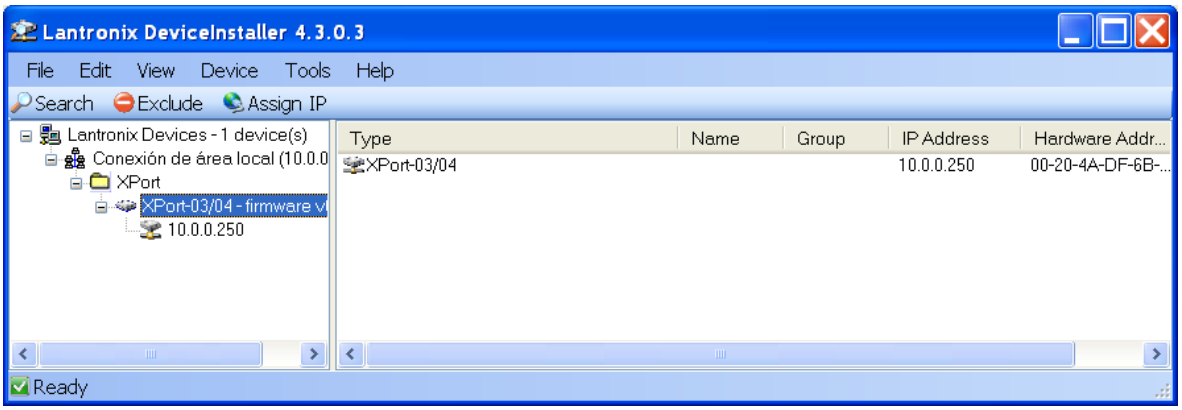
For the application correct operation, the PC firewall being executed may be temporally disconnected.

Once the Device Installer application has been installed, the following steps should be observed:

- Feed the AE/SA-GAT equipment. Check that 3.3V and 5V power LEDs are illuminated.
- Connect the PC Ethernet Port to the AE/SA-GAT equipment through a cable with RJ45 connectors. The green LED of the XPort micro server should be illuminated.
- Execute **Device Installer**. The following screen should be shown:

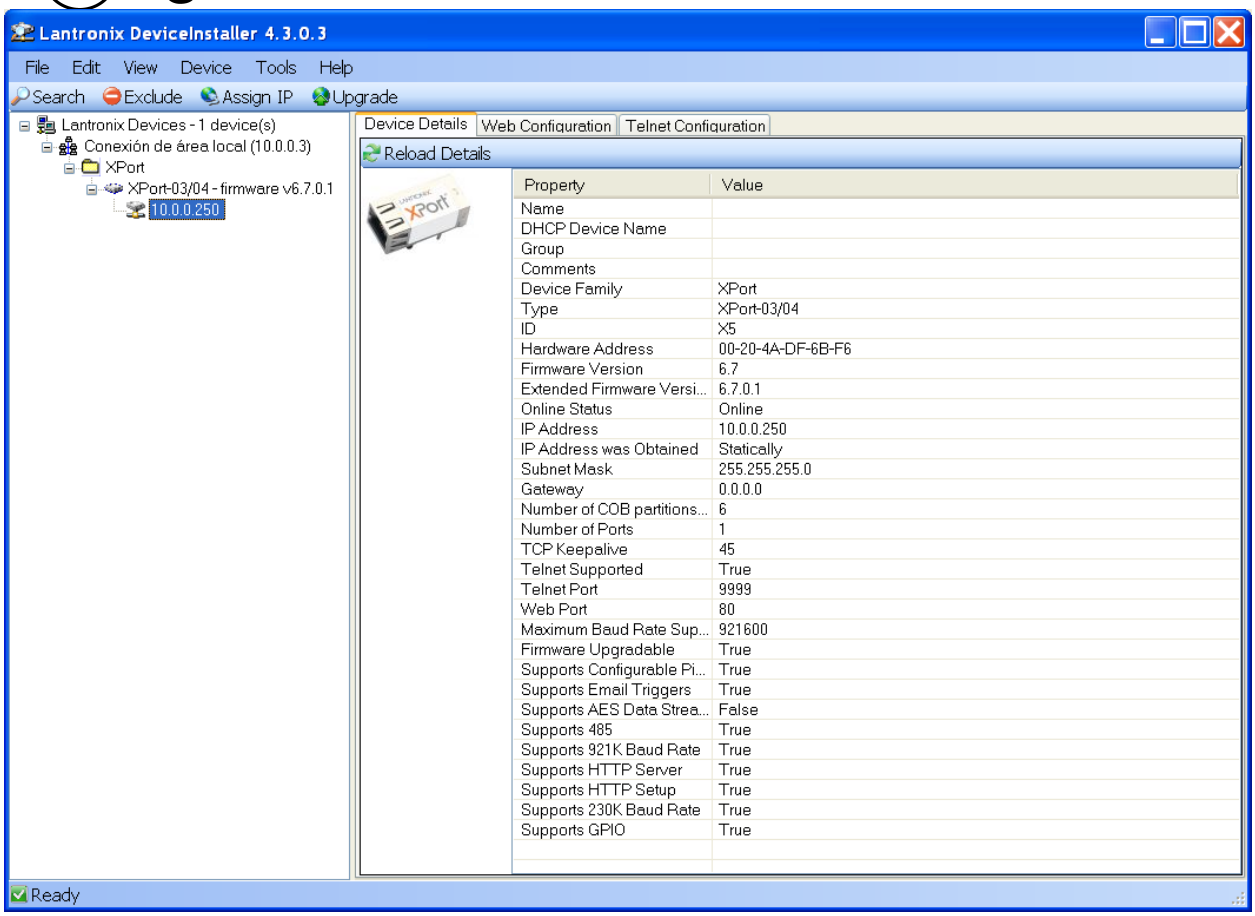


- Press the "**Search**" icon and the search of devices starts, showing them on a new window and being added to the list later.



- The device found (there should be only one) is added to the list of the main window.
- By expanding the information, the present IP Address of the AE/SA-GAT Interface is shown.

Double-click on the device to enter the window for configuration details.

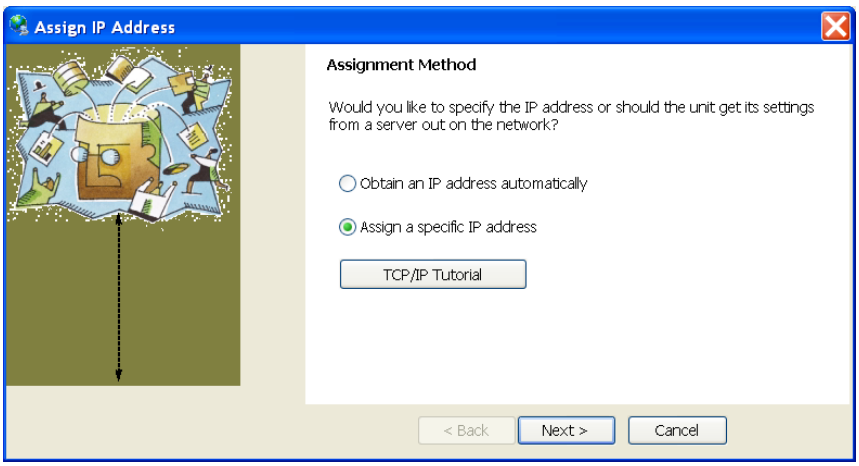


It is also possible to search all devices connected to the Ethernet network where we are connected to. This is very useful in installations where there are two or more equipments connected.

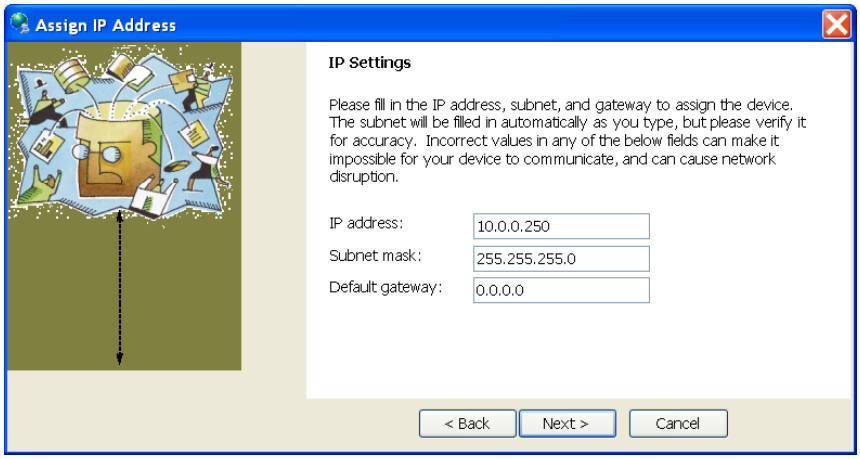
6.2.2 ASSIGNMENT OF AN IP ADDRESS.

Having selected the device we want the IP Address to be modified, press "**Assign IP**" on the menu shortcut strip, or press "**F7**".

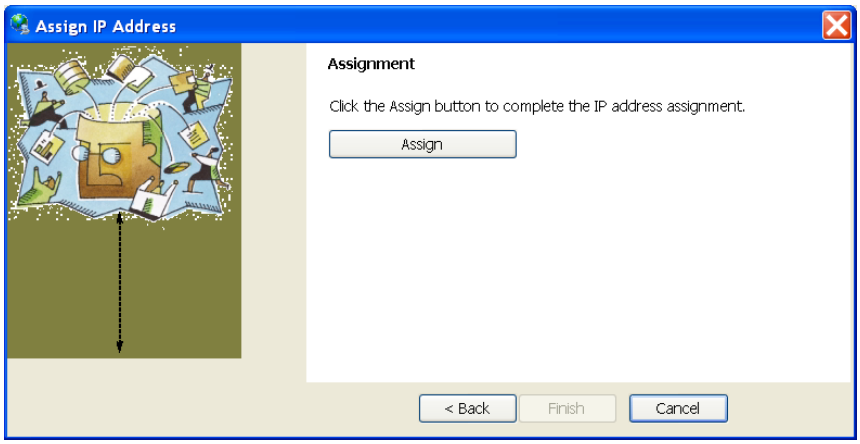
- A new window for the assignment of the Ip address will be opened, select "**Assign specific IP address**", and then press "Next" to continue.



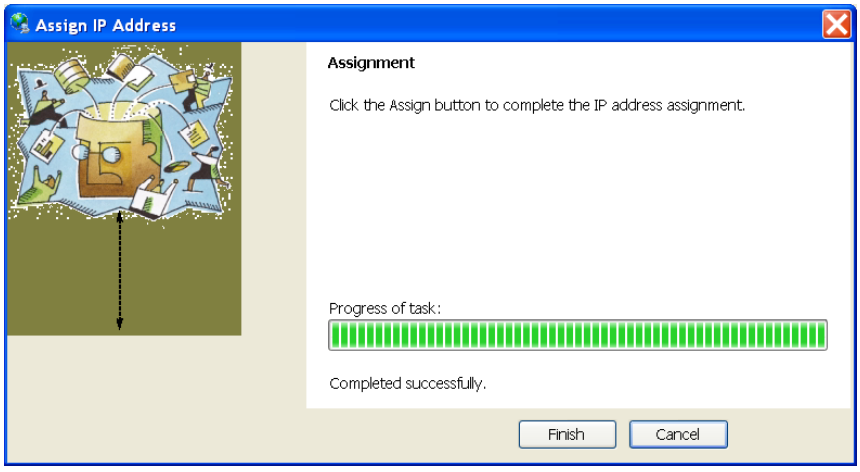
- Enter the values for the **IP address**, **Subnet mask** and **Default Gateway** fields. These values should be provided by the network administrator where the AE/SA-GAT will be installed for ensuring the correct operation and prevent from address conflict with other equipments. Press "Next" to continue.



- Press the "Assign" button for saving data in the AE/SA-GAT communication interface.



- The data dump process starts and a confirmation message is shown some seconds later, then the process finishes. Press "Finish" to finish.



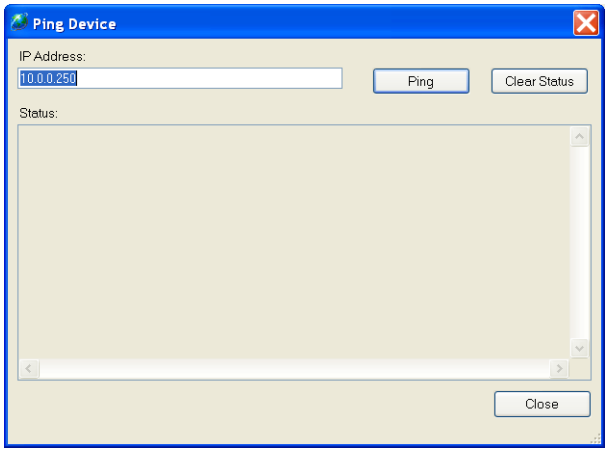
If some parameters cannot be configured, please consult section 6.2.3.1 accessing through the web configurator.

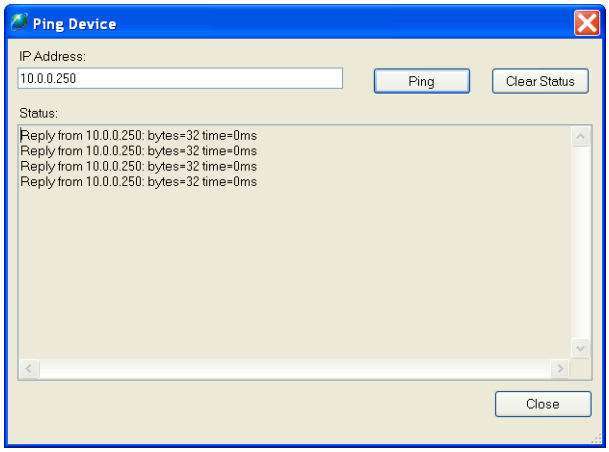
A communication operation test may be carried out with the following procedure:

- Select the device from the list of the main window, and then select the “Ping” option from the “Tools” menu. You can also access by pressing the “F4” key. A window showing the IP Address of the device selected is opened.

- Press the “Ping” button, and on the “Status” window results are shown. The test can be repeated again by pressing “Ping”, or results eliminated with the “Clear Status” button.

If there are no reply messages (Reply) make sure that the AE/SA-GAT communication interface is connected to the network and the IP Address assigned is valid for the network segment where working. If you are not sure, check it with your network administrator.

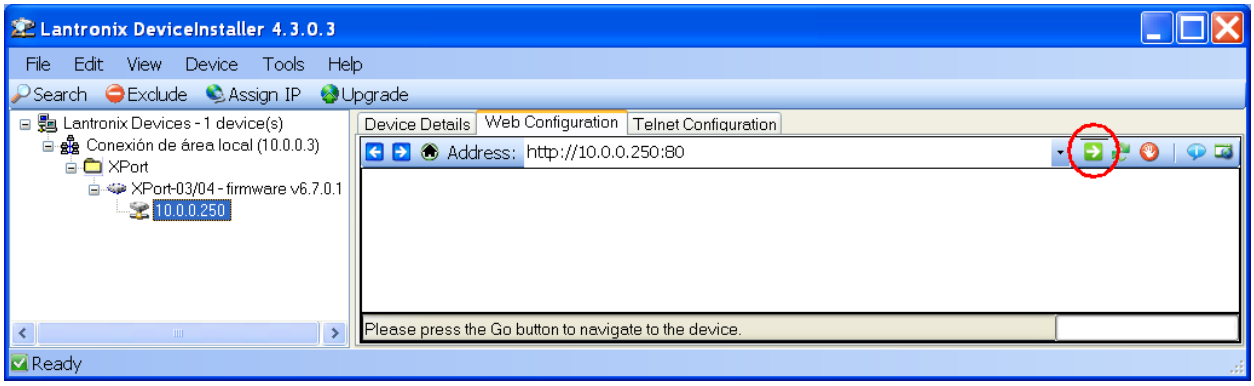




- Press the “Close” button and return to the programme main window.

6.2.3 CONFIGURATION OF THE MICRO SERVER.

To access the micro server configuration, select “Web configurator” on the right window and then click on the green button.



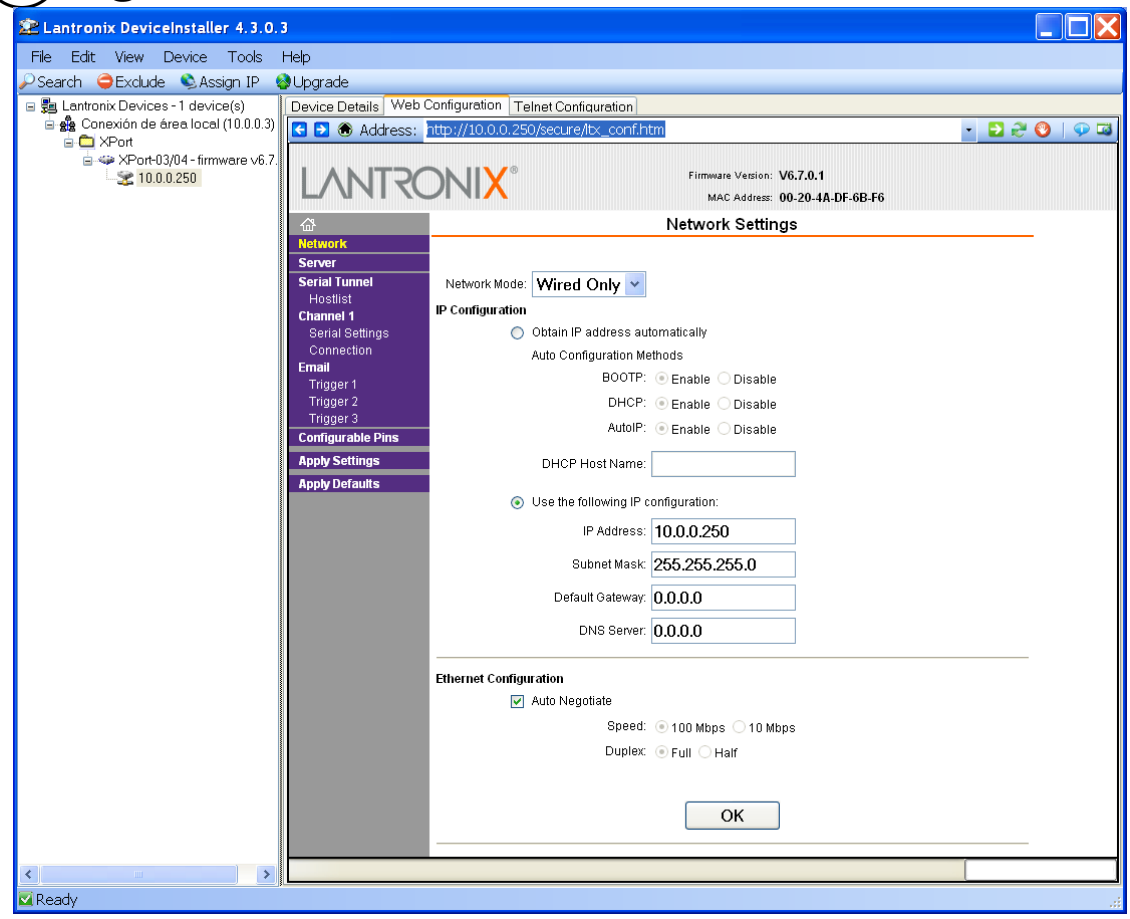
It is also possible to access directly through a web browser (IE, Firefox, etc) if knowing the IP Address and typing the IP Address on the address bar.

User name and password will be asked for having access to the equipment. Fields should be left blank although they can be defined afterwards for protecting access to the equipment.

When pressing “Accept” the following screen will be shown.

6.2.3.1 NETWORK CONFIGURATION (NETWORK).

By selecting the *“Network”* option on the left panel, we will access the page of network parameter configuration of the equipment.



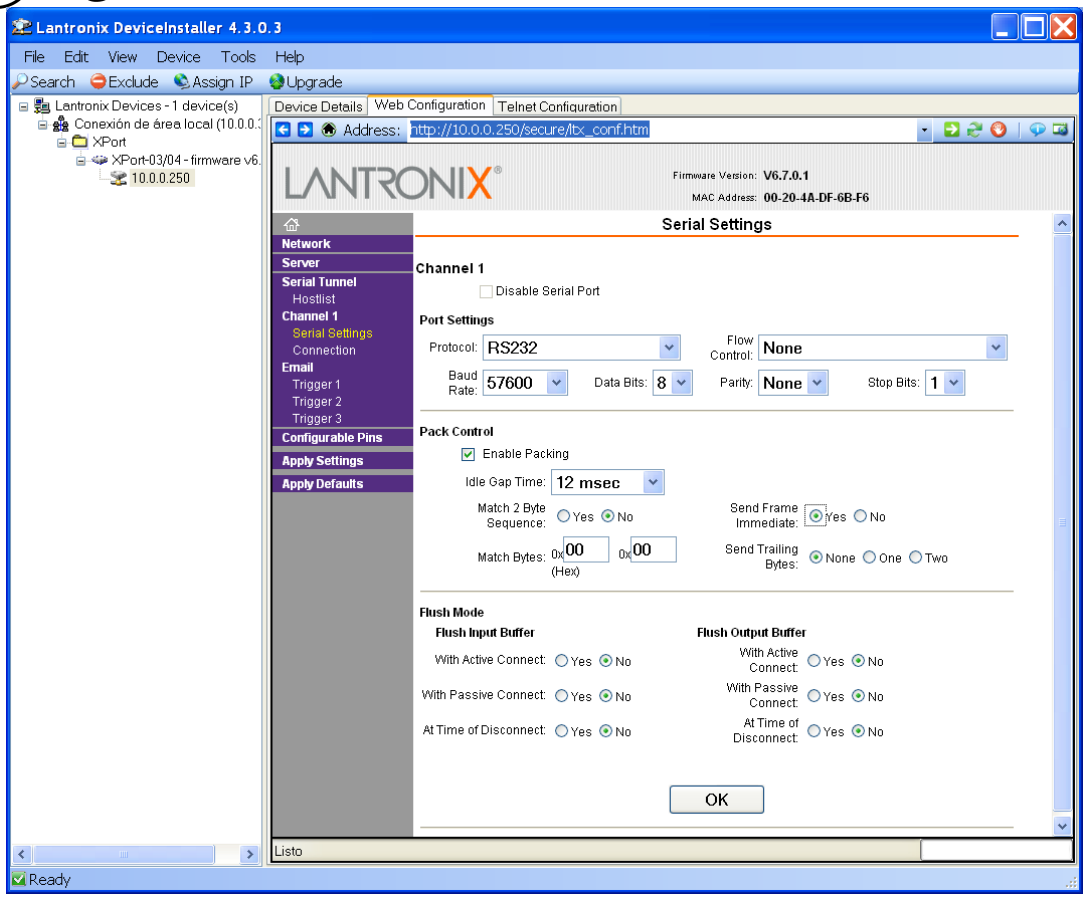
The IP Address for the equipment should be entered in this page as well as the network mask.
The rest of parameters are not usually necessary but it is appropriate to confirm it with the **network administrator** where the Communication Interface is going to be installed.

Press the *"**OK**"* button after entering the required data. The text "Done" will be shown for a few seconds.

Press "**Apply Settings**" when finishing for modifications to take effect.

6.2.3.2 CONFIGURATION OF THE SERIAL PORT.

Next, we should check that the configuration of the serial Port of the micro server is correct.
In order to do that, select the *"**Channel 1 - Serial Settings**"* option on the left panel and make sure that all data is configured as shown on the window below:



- Channel 1. Port settings
  - Protocol: RS-232
  - Flow control: None
  - Baud Rate: 57600
  - Data bits: 8
  - Parity: None
  - Stop bits: 1
  - FIFO: Enable

👁 This serial Port is an internal Port of the micro server equipment. It has no relationship with the serial Port configuration of the Interface that as we have seen before, it is made through the AGE42IDC Customizer and it is not related at all with the configuration of the serial Port of the algorithmic central unit the Interface will be connected to.

👁 Modification of these data will make the AE/SA-GAT equipment not to work correctly.

If data has been needed to be modified, press the *"**OK**"* button. The text "Done" will be shown for a few seconds. Press "**Apply Settings**" when finishing for modifications to take effect.

6.2.3.3 OPERATION MODES.

The needed operation mode should be selected for correct operation, according to the work mode selected in the AE/SA-GAT Interface through the AGE42IDC programme.

Possible configurations are as follows:

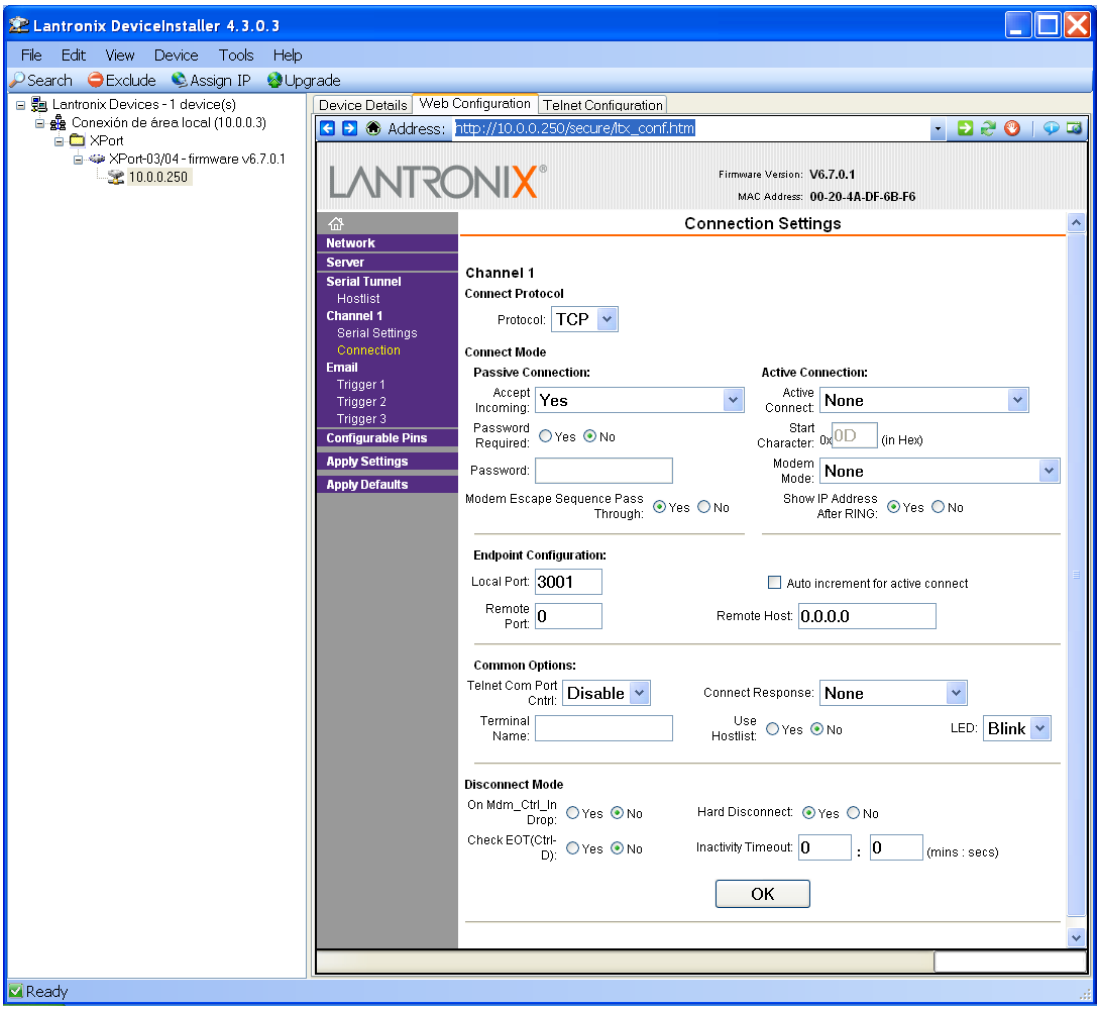
AE/SA-GAT work mode	Micro server operation mode

MODBUS/TCP	TCP Passive Connection
OPTIMUS	TCP Active Connection
GATEWAY	TCP Passive Connection

6.2.3.3.1 TCP PASSIVE CONNECTION.

This operation mode should be programmed for the AE/SA-GAT operation in MODBUS/TCP and GATEWAY mode. This is the default programmed mode.

The following screen will be shown when selecting the ***"Channel 1 - Connection"*** option on the left panel.



The following values should be selected:

- **Connect Protocol:**
  - Protocol TCP
- **Connect Mode :**
  - Passive Connection : Accept Incomming YES
  - Active Connection : Accept Incomming None
- **Endpoint Configuration :**
  - Local Port : 3001 or the Port we want to use.
  - Remote Port : 0

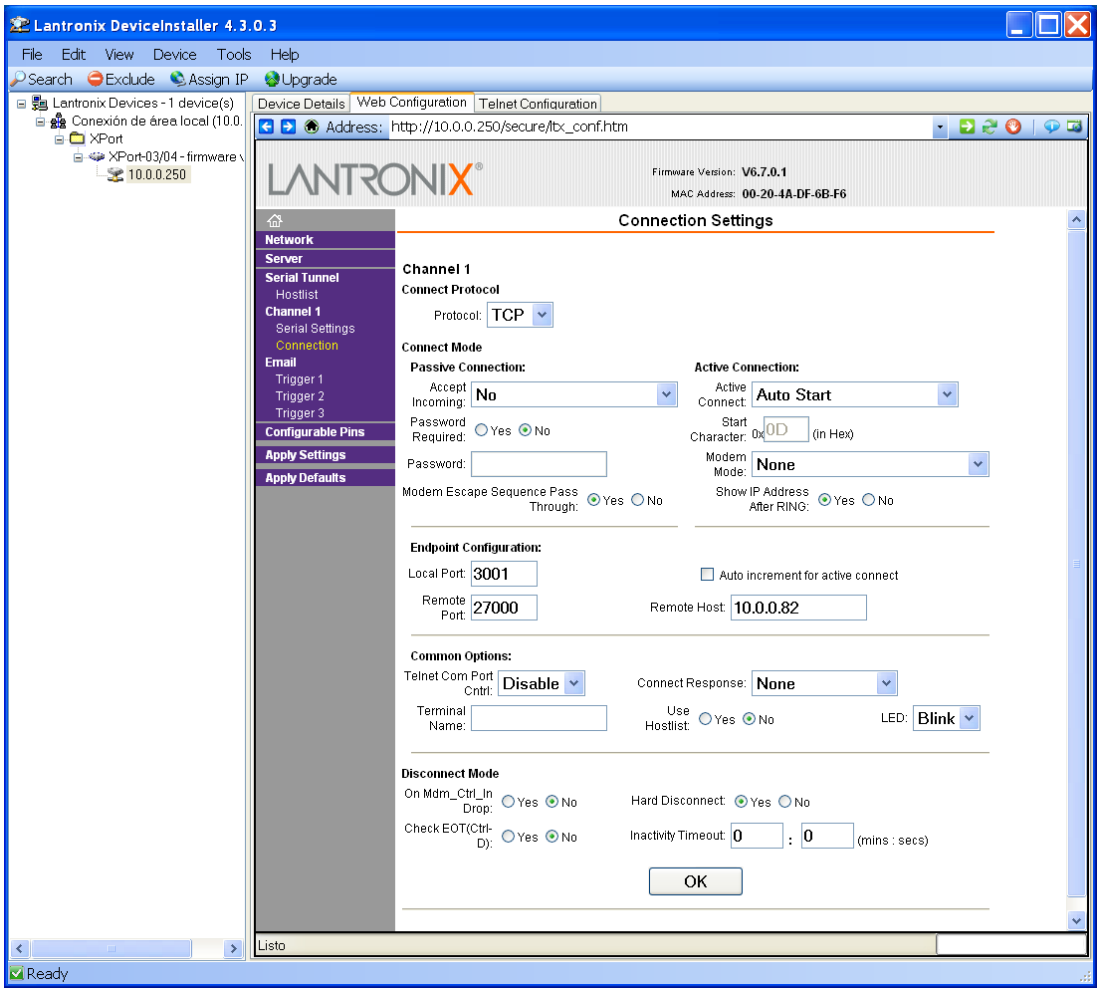
- Remote Host : 0.0.0.0

The rest of parameters as shown on the screen.

If data has been needed to be modified, press the ***"OK"*** button. The text "Done" will be shown for a few seconds. Press "**Apply Settings**" when finishing for modifications to take effect.

6.2.3.3.2 TCP ACTIVE CONNECTION.

This operation mode should be programmed for the operation of AE/SA-GAT in OPTIMUS mode.
The following screen will be shown when selecting the *"**Channel 1 - Connection**"* option on the left panel.



The following values should be selected:

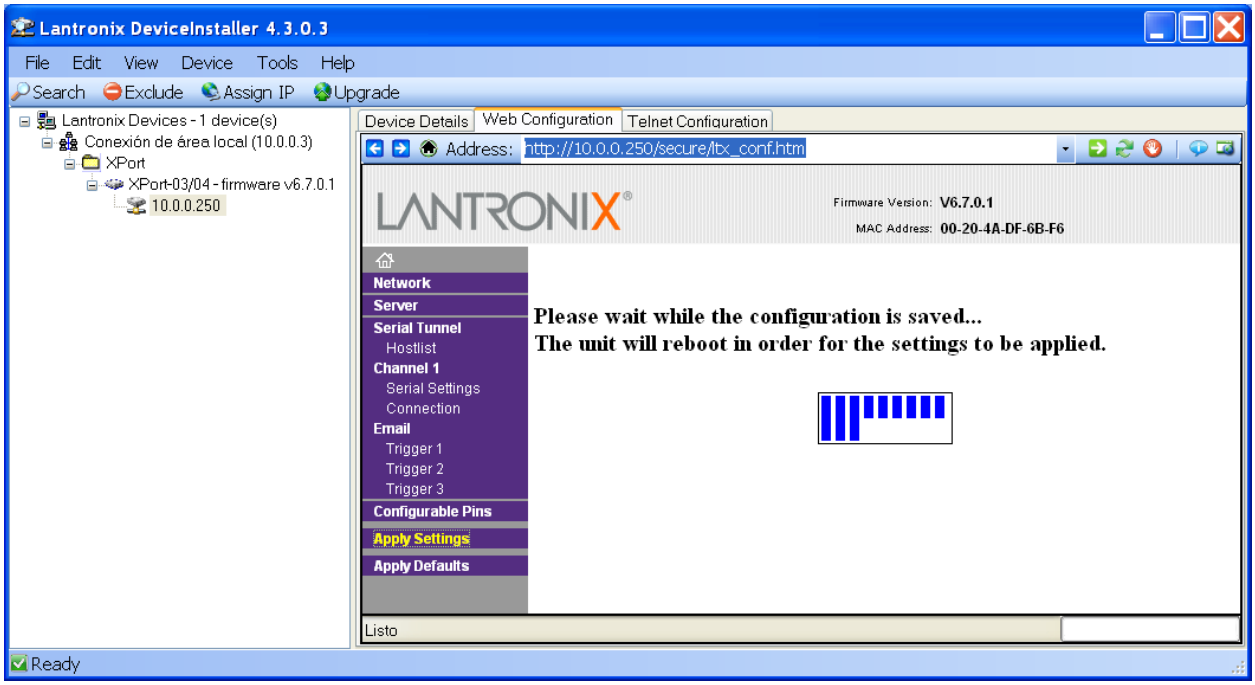
- **Connect Protocol:**
  - Protocol TCP
- **Connect Mode :**
  - Passive Connection : Accept Incomming NO
  - Active Connection : Accept Incomming Auto Start
- **Endpoint Configuration :**
  - Local Port : 3001 or the Port we want to use.
  - Remote Port : 27000 should be the Port to be used in the OPTIMUS equipment
  - Remote Host : IP Address of the OPTIMUS equipment.

The rest of parameters as shown on the screen.

If data has been needed to be modified, press the *"**OK**"* button. The text "Done" will be shown for a few seconds. Press "**Apply Settings**" when finishing for modifications to take effect.

6.2.3.4 SAVING DATA AND RESETTING.

Once the micro server configuration has finished, it is necessary to save the configuration data and restart the equipment.
Select "**Apply Settings**" on the left panel for modifications to take effect. The following message will be shown:

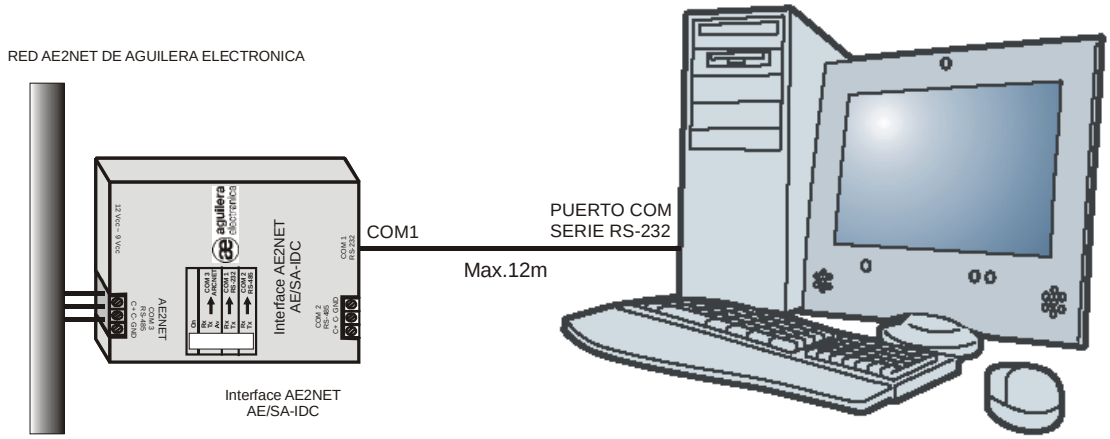


After, restarting, the micro server will show the configuration main window and then it will start operating with the configuration entered.

7 CONNECTION EXAMPLES

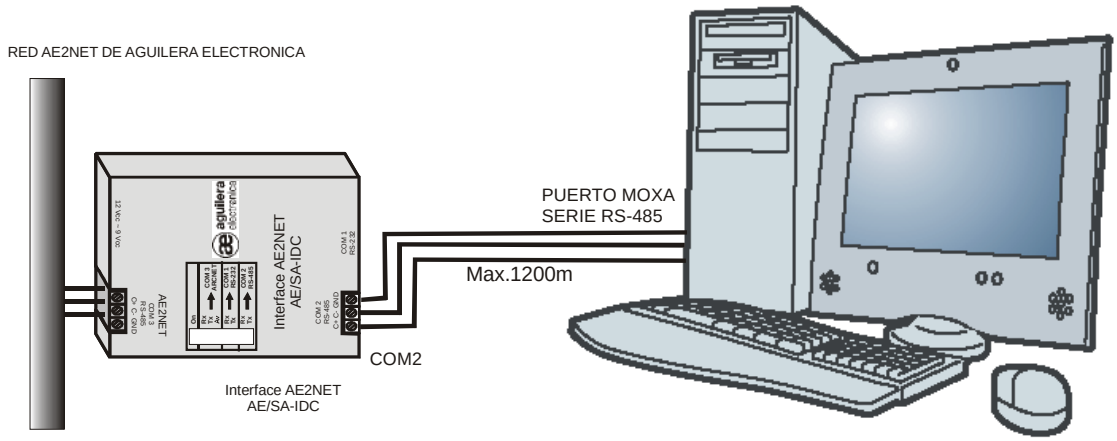
7.1 AGUILERA ELECTRONICA AE2NET NETWORK

CONNECTION EXAMPLE THROUGH RS-232 SERIAL PORT



ORDENADOR DE CONTROL
AGUILERA ELECTRONICA

CONNECTION EXAMPLE THROUGH RS-485 SERIAL PORT

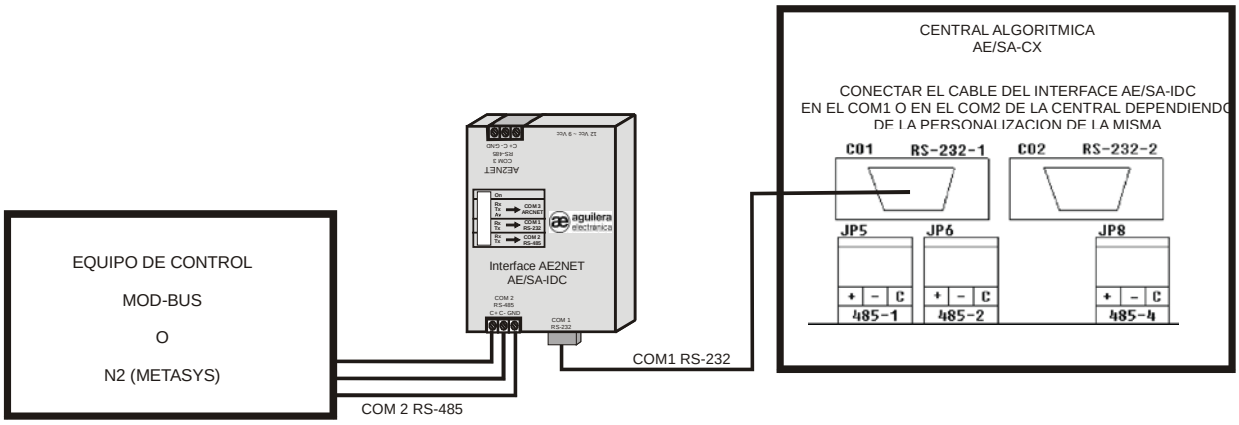


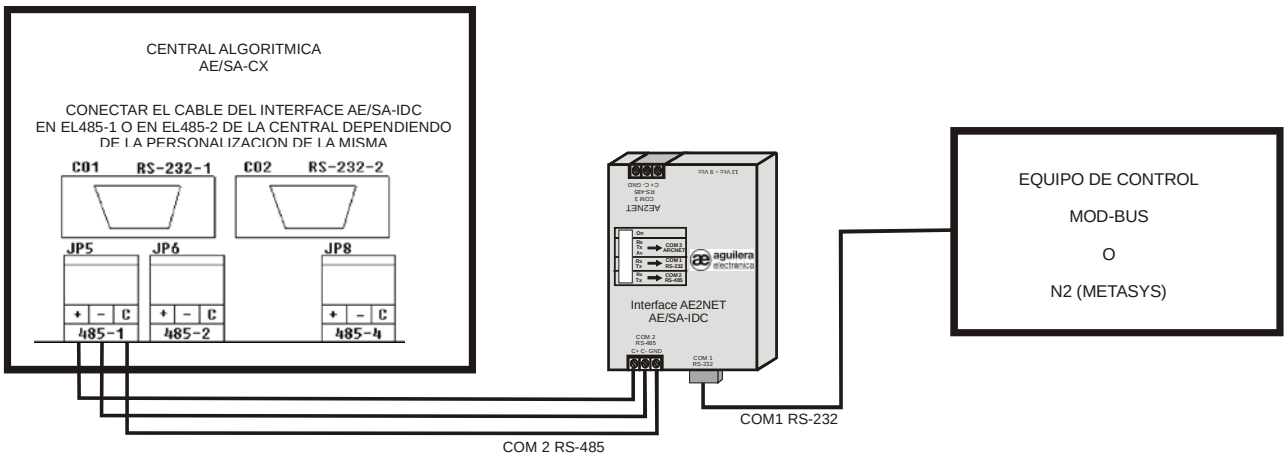
ORDENADOR DE CONTROL
AGUILERA ELECTRONICA

ORDENADOR DE CONTROL (CONTROL COMPUTER)
(RS-485 Connection distances can be expanded by using optical fiber)

7.2 INTEGRATION WITH MODBUS OR N2 (METASYS)

CONNECTION EXAMPLE THROUGH SERIAL PORTS


CENTRAL ALGORITMICA
AE/SA-CX
CONECTAR EL CABLE DEL INTERFACE AE/SA-IDC
EN EL COM1 O EN EL COM2 DE LA CENTRAL DEPENDIENDO
DE LA PERSONALIZACION DE LA MISMA
C01 RS-232-1
C02 RS-232-2
JP5
JP6
JP8
+ - C
485-1
485-2
485-4
EQUIPO DE CONTROL
MOD-BUS
O
N2 (METASYS)
Interface AE2NET
AE/SA-IDC
COM1 RS-232
COM 2 RS-485


CENTRAL ALGORITMICA
AE/SA-CX
CONECTAR EL CABLE DEL INTERFACE AE/SA-IDC
EN EL485-1 O EN EL485-2 DE LA CENTRAL DEPENDIENDO
DE LA PERSONALIZACION DE LA MISMA
C01 RS-232-1
C02 RS-232-2
JP5
JP6
JP8
+ - C
485-1
485-2
485-4
Interface AE2NET
AE/SA-IDC
EQUIPO DE CONTROL
MOD-BUS
O
N2 (METASYS)
COM1 RS-232
COM 2 RS-485

CONECTAR EL CABLE DEL INTERFACE AE/SA-IDC EN EL COM 1 O EN EL COM 2 DE LA CENTRAL DEPENDIENDO DE LA PERSONALIZACIÓN DE LA MISMA
(CONNECT THE CABLE OF THE AE/SA-IDC INTERFACE IN THE COM 1 OR COM 2 OF THE CENTRAL UNIT ACCORDING TO ITS CUSTOMIZATION)

CONECTAR EL CABLE DEL INTERFACE AE/SA-IDC EN EL 485-1 O EN EL 485-2 DE LA CENTRAL DEPENDIENDO DE LA PERSONALIZACIÓN DE LA MISMA
(CONNECT THE CABLE OF THE AE/SA-IDC INTERFACE IN THE 485-1 OR 485-2 OF THE CENTRAL UNIT ACCORDING TO ITS CUSTOMIZATION)

CENTRAL ALGORÍTMICA (ALGORITHMIC CENTRAL UNIT)
EQUIPO DE CONTROL (CONTROL EQUIPMENT)

aguilera electronica

GRUPO aguilera

YOUR NEAREST POINT OF ASSISTANCE AND SUPPLY

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Tel: 91 754 55 11

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Tel: 91 754 55 11

NORTHEAST OFFICE
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Tel: 93 381 08 04

EAST OFFICE
Tel: 628 92 70 56

NORTHWEST OFFICE
C/ José Luis Bugallal Marchesi, 9 – 15008 – A Coruña
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SOUTH OFFICE
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Parque Industrial y de Servicios del Aljarafe (P.I.S.A.) – 41927 – Mairena del Aljarafe – Seville
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