Serial to Ethernet Gateway

MD-N32

Installation & Operating Guide

April 2009

ROSSLARE
SECURITY PRODUCTS

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1. Introduction

The MD-N32 is a Serial to Ethernet Gateway. One MD-N32 unit is required (unless it is connected to a Rosslare software product that supports direct TCP/IP operation , in which case, the PC's internal LAN card may be used).

A Serial to Ethernet Gateway allows connectivity for systems with legacy serial interface communication, such as RS232 or RS485, with local networks and Internet.

The concept is to send and receive information between varied PC-managed products (Access Control systems, Guard Control, Security systems, etc.) via a local network or Internet, thereby saving on serial cabling installation, and enabling connections to remote sites. (Most modern offices are already networked.)

As a compact plug-in module, the MD-N32 can easily connect to most products without modification. The module receives serial communication, converts it to TCP/IP format, and sends it over the LAN or Internet to the PC. From the other end, the module converts communications sent from the PC over the network back to serial format into the device.

All the setting and configuration is done using the "AS-IP01 Configuration utility" PC software or by other Rosslare software that supports a direct connection to hardware through TCP/IP. (Refer to the software manuals of the specific products.) Once the module is configured, the information is saved in a non-volatile memory within the module.

The MD-N32 has two indication LEDS - the green LED indicates LAN connectivity (Link) and the red LED indicates Power Supply operation (Power).

Figure 1: Front View of the MD-N32

Figure 2: Rear View of the MD-N32

This manual contains the following information:

- Features and Specifications
- Connection and Configuration

2. Specifications

Electrical Characteristics	
Input Power	10-16VDC
Power Consumption	Typical: 75mA Maximum: 115mA
Transmission and Connectivity Characteristics	
Hardware Protocols	TCP, UDP, IP, ARP, ICMP, Ethernet MAC
Network Interface	10/100 Base-T Ethernet (Auto Detection) RJ-45 jack for LAN connection
Serial Port	D9 Male Connector RS-232
Data	1,4,6,7,8,9 –NC 2 – Rx 3 – Tx 5 – GND Signal
MCU	32 bit micro-controller
Serial Line Format	8-N-1, 8-O-1, 8-E-1, 7-O-1, 7-E-1
Serial Flow Control	None, XON/XOFF
Transmission Speed	1200bps~115Kbps
Environmental Characteristics	
Operating Temp. Range	32°F to 158°F (0°C to 70°C)
Operating Humidity	10 – 90% (non-condensing)
Dimensions	
Height x Width x Depth	4.33"x2.48"x1.54" (110mmx63mmx 39mm)
Weight	0.203 Lbs. (92g)

3. Connection and Configuration

3.1 Hardware Requirements

The following are the hardware units required to connect the MD-N32 to the remote unit.

- Standard LAN cables - RJ45 plugs on both sides.
- 12V (400mA) DC power adaptor, connected to the unit's DC jack.
- MD-14 RS485 to RS232 Converter (for RS485 units or RS232 cable).

3.2 Software Requirements

The following are the requirements for the software installation of the "AS-IP01 Configuration Utility" PC software.

Your PC configuration must be able to support one of the following operating systems:

- Windows® 98/ME
- Windows® NT/2000/XP

One of the above operating systems must be installed on your computer.

The PC must have a LAN network connection to configure the MD-N32. Both the PC and external unit must be connected to the same LAN through a HUB. It is also possible to use the MD-N32 over a WAN, but this requires network router settings. (It is recommended that system administrators be responsible for setting network routers.)

3.3 Connecting the MD-N32

Before setting, ask your network administrator for an IP address, ports, and subnet masks for each MD-N32.

3.3.1. Network Connection

Connect each MD-N32 to the LAN using the LAN cables through the RJ-45 connector on each unit of the MD-N32. Make sure that the units are connected to the same LAN through a HUB.

3.3.2. Serial Connection

Unit side

Connect the unit to the MD-N32 DB9 jack using an RS-232 cable, or use Rosslare's MD-14 when necessary (RS485 to RS-232 Converter).

3.3.3. Power Connection

Connect a 12V (200mA) DC power adaptor to each MD-N32 unit.

Ensure that the MD-N32 Power LED is on.

3.3.4. Network Connection Diagrams

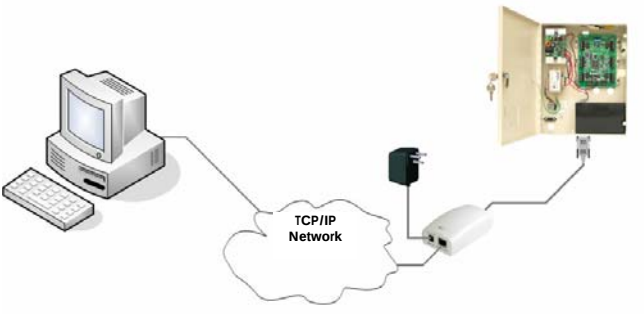

Figure 3 Network Connection Using One MD-N32 and the PC Network Card

3.4 Configuring the AS-IP01

3.4.1. Software Overview

Install the AS-IP01 Configuration Utility according to the installation's automated steps.

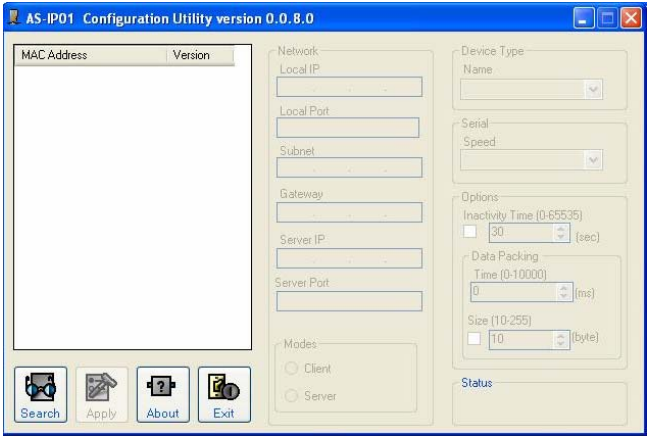

Figure 4 AS-IP01 Configuration Utility

The AS-IP01 Configuration Utility includes the following features:

- A MAC Address table in the left pane.
- **Network**, **Serial**, and **Options** sections in the right pane.
- **Search**, **Apply**, **About**, and **Exit** buttons in the bottom left pane.

Each section of the AS-IP01 Configuration Utility and its parameters are labeled in Figure 4. An explanation of each section and parameter is provided below.

1. MAC Address Table

1.1 MAC Address

When the MD-N32 units connected to the network are found,

the located units are displayed as MAC addresses in the table.

Note:

The MAC number is a long 12 digit number that can be found on a sticker located on the bottom side of the MD-N32 unit.

1.2 Version

The MD-N32 Firmware version is displayed.

2. Buttons

2.1 Search

Clicking the **Search** button retrieves all operating MD-N32 units connected to the network. The results are displayed as MAC addresses in the table.

2.2 Apply

Clicking the **Apply** button changes the configuration of the selected MD-N32 unit; the selected unit is initialized with the newly entered values.

2.3 About

Clicking the **About** button displays the details of the AS-IP01 Configuration Utility, as shown in Figure 5.

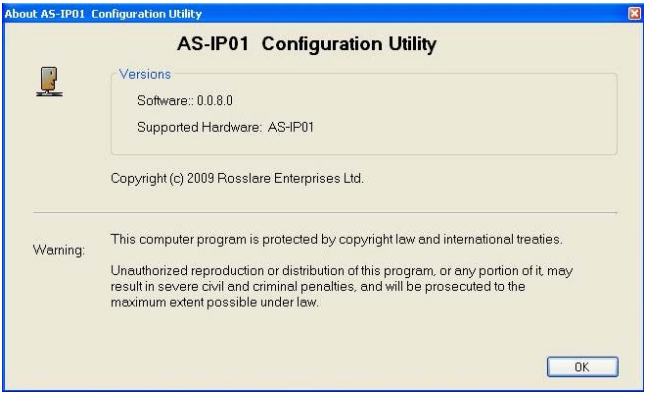

Figure 5 AS-IP01 Configuration Utility – About Button

2.4 Exit

Clicking the **Exit** button exits the software.

3. Network Section

Once a unit is selected by highlighting the MAC address in the MAC Address table, the network information of the selected unit is displayed in this section.

You can change the network configuration of the unit by inserting and/or revising the information in the following parameters of the Network section.

3.1 Local IP and Local Port – The IP address of the unit is displayed here; revise it manually, if required. When the unit is set to operate in Server mode, define the "Listen Port" in Local Port.

3.2 Subnet – The subnet address of the unit appears here; revise it manually, if required.

3.3 Gateway – The gateway address appears here; revise it manually, if required.

3.4 Server IP and Server Port – When the unit is set to operate in Client mode, define the server's IP and Port here.

3.5 Modes – Select one of the radio buttons to choose the network mode of operation. Choose either:

- Client mode **–** to set the unit to operate in client mode and to attempt to connect it to the specified server's IP address and port.
- Server mode **–** this means that it listens in on the specified Listen Port, and awaits client connection.

Note:

In the client mode, inactivity time should be set above 30 seconds (the default is 45 seconds). The inactivity timer of the server is set to 0 by default. The client will close and restart the socket every 45 seconds. When the server is reset, the link between the client and the server will be resumed after 45 seconds. While data transfer may fail when the socket is restarted, the transfer should be successful the next time the socket is restarted.

Note:

Data transfer will not fail as long as "keep alive" data is maintained in the TCP socket.

Note:
A socket connection should be in place when the data is sent from a serial device. If not, a connection may be initiated to the server IP and port, and the data may then be resent.

4. Device Type
This section contains the name of the product. Select MD-N32.

5. Serial Speed
This section lists the product's speed, which can be configured as desired.

Click the **Apply** button for any changes in the device type or serial speed to take effect.

6. Options Section
The Options section includes the following parameters:

6.1 Inactivity Time – The inactivity time is intended for use with the TCP channel when a link is established. If the inactivity timer has expired, the channel will be closed to data transfer. Data transfer will resume once the MD-N32 has been set to the client. The inactivity timer range may be 0 (the default, TCP channel is always ON) or from 30 to 65,535 seconds.

Data Packing – Allows you to designate conditions for Serial to Ethernet data transmission. The two conditions are **Time** and **Size**, with time packing activated by default.

A. **Time –** Designates a time frame for periodic transmission, between 0 and 10,000 milliseconds.

B. **Size –** Select the checkbox to enable the size packing feature. Then designate the data size for transmission based on data packet size, between 10 and 255 bytes.

After changes are made, click the **Apply** button for the changes to take effect.

7. Status

The Status describes the status of the selected MAC (e.g., Configured).

3.4.2. Configuring the MD-N32

Startup

1. Run the "AS-IP01 Configuration Utility" PC software.
2. Click the **Search** button.

   The processing window appears.

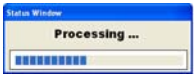

Figure 6 Processing Window

3. When the search is complete, ensure that the correct MD-N32 MAC Addresses appear in the MAC Address table.

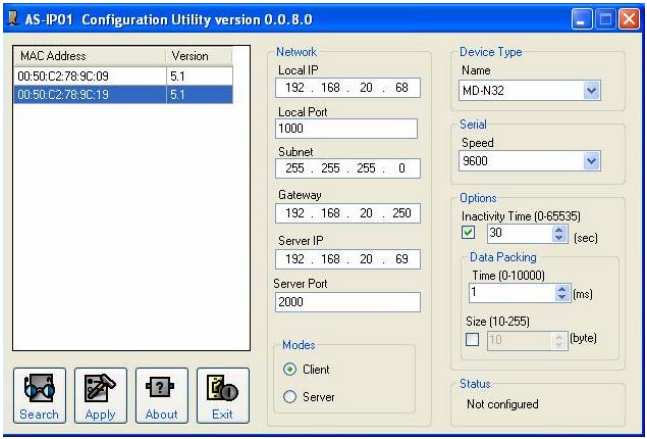

Figure 7 AS-IP01 Configuration Utility – Search Button Results

Note:

It is not possible to run two sets of AS-IP01 simultaneously on the same PC or on the same network. It is also not recommended that AS-IP01 be run simultaneously with some software applications, either based on Microsoft ® Visual Basic 6, or featuring TCP/IP support, since the AS-IP01 may malfunction. By way of example, it is not recommended that AS-IP01 be run on the same PC, and at the same time, as Rosslare's AxTrax software.

Unit side

1. Select the MAC Address of the MD-N32 unit that is connected to the applicable networked unit.
2. In the Network section, in the **Local IP** and **Local Port** text boxes, type the first IP Address and port number (1000 recommended) supplied by your network administrator.
3. In the **Subnet** text box, type the supplied subnet.
4. In the **Server IP** text box, type the second IP Address and Port number (1000 recommended).
5. In **Modes**, select either **Client** or **Server**, as required.
6. Click the **Apply** button to send the configuration to the unit.

Finish

1. Run the applicable application software for the networked unit.

Appendix A.Limited Warranty

ROSSLARE ENTERPRISES LIMITED S (Rosslare) TWO YEARS LIMITED WARRANTY is applicable worldwide. This warranty supersedes any other warranty. Rosslare's TWO YEARS LIMITED WARRANTY is subject to the following conditions:

Warranty

Warranty of Rosslare's products extends to the original purchaser (Customer) of the Rosslare product and is not transferable.

Products Covered By This Warranty and Duration

ROSSLARE ENTERPRISES LTD. AND / ORSUBSIDIARIES (ROSSLARE) warrants that the MD-N32 Serial to Ethernet Gateway is free from defects in materials and assembly in the course of normal use and service. The warranty period commences with the date of shipment to the original purchaser and extends for a period of 2 years (24 Months).

Warranty Remedy Coverage

In the event of a breach of warranty, ROSSLARE will credit Customer with the price of the Product paid by Customer, provided that the warranty claim is delivered to ROSSLARE by the Customer during the warranty period in accordance with the terms of this warranty. Unless otherwise requested by ROSSLARE ENTERPRISES LTD. AND / OR SUBSIDIARIES representative, return of the failed product(s) is not immediately required. If ROSSLARE has not contacted the Customer within a sixty (60) day holding period following the delivery of the warranty claim, Customer will not be required to return the failed product(s). All returned Product(s), as may be requested at ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARY'S sole discretion, shall become the property of ROSSLARE ENTERPRISES LTD. AND /OR SUBSIDIARIES.
To exercise the warranty, the user must contact Rosslare Enterprises Ltd. to obtain an RMA number after which, the product must be returned to the Manufacturer freight prepaid and insured
In the event ROSSLARE chooses to perform a product evaluation within the sixty (60) day holding period and no defect is found, a minimum US$ 50.00 or equivalent charge will be applied to each Product for labor required in the evaluation.
Rosslare will repair or replace, at its discretion, any product that under normal conditions of use and service proves to be defective in material or workmanship. No charge will be applied for labor or parts with respect to defects covered by this warranty, provided that the work is done by Rosslare or a Rosslare authorized service center.

Exclusions and Limitations

ROSSLARE shall not be responsible or liable for any damage or loss resulting from the operation or performance of any Product or any systems in which a Product is incorporated. This warranty shall not extend to any ancillary equipment not furnished by ROSSLARE, which is attached to or used in conjunction with a Product, nor to any Product that is used with any ancillary equipment, which is not furnished by ROSSLARE.
This warranty does not cover expenses incurred in the transportation, freight cost to the repair center, removal or reinstallation of the product, whether or not proven defective. Specifically excluded from this warranty are any failures resulting from Customer's improper testing, operation, installation, or damage resulting from use of the Product in other than its normal and customary manner, or any maintenance, modification, alteration, or adjustment or any type of abuse, neglect, accident, misuse, improper operation, normal wear, defects or damage due to lightning or other electrical discharge. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument, or any modification or abuse of, or tampering with, the Product if Product disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.
ROSSLARE does not warrant the installation, maintenance, or service of the Product. Service life of the product is dependent upon the care it receives and the conditions under which it has to operate.
In no event shall Rosslare be liable for incidental or consequential damages.

Limited Warranty Terms

THIS WARRANTY SETS FORTH THE FULL EXTENT OF ROSSLARE ENTERPRISES LTD. AND ITS SUBSIDIARY'S WARRANTY

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IN NO EVENT SHALL ROSSLARE BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, OR FOR ANY OTHER INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF TIME, COMMERCIAL LOSS, INCONVENIENCE, AND LOSS OF PROFITS, ARISING OUT OF THE INSTALLATION, USE, OR INABILITY TO USE SUCH PRODUCT, TO THE FULLEST EXTENT THAT ANY SUCH LOSS OR DAMAGE MAY BE DISCLAIMED BY LAW.

THIS WARRANTY SHALL BECOME NULL AND VOID IN THE EVENT OF A VIOLATION OF THE PROVISIONS OF THIS LIMITED WARRANTY.

Appendix B. Technical Support

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