

*Serial to Ethernet Gateway*  
*MD-N32*  
*Installation & Operating Guide*



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**ROSSLARE**  
SECURITY PRODUCTS



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# 1. Introduction

The MD-N32 is a Serial to Ethernet Gateway. You will require two MD-N32's one connected to the PC and one connected to the remote unit (unless connected to Rosslare's AC-215 unit in which case you can use the PC's internal LAN card).

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 thus saving on serial cabling installation. (Most of 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 and from the other end, communications sent from the PC over the network, converts back to serial format into the device.

All the setting and configuration is done using the "IIM7100A Configuration tool" PC software, except when connected to Rosslare's AC-215, in which case the configuration is done directly from the AS-215 VeriTrax supplied with the AC-215 unit (see the AC-215 manual for configuration instructions). Once the module is configured, the information is saved in a non-volatile memory within the module.

Both of the MD-N32's (the one connected to the end unit, and the one connected to the computer) need to be configured on the computer.

The MD-N32 has two indication LEDs, the green LED indicates LAN connectivity (Link) and the red LED indicated 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

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### Electrical Characteristics

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Input Power	10-16VDC	
Power consumption	Typical:	70mA
	Maximum:	100mA

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### Transmission and Connectivity Characteristics

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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

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MCU	8bit MCU and 32K Flash
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

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### Environmental Characteristics

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Operating Temp. Range	32°F to 158° F (0°C to 70°C)
Operating Humidity	10 – 90% (non-condensing)

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### Dimensions

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Height x Width x Depth	4.33"x2.48"x1.54" (110mmx63mmx 39mm)
Weight	0.203 Lbs. (92g)

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## 3. Connection and Configuration

### 3.1 Hardware Requirements

The following are the required hardware units used to connect the MD-N32 to either the PC or remote Unit.

- Crossed linked RS-232 cable - 9 pin D type female plugs on both sides.
- 2 Standard LAN cables - RJ45 plugs on both sides.
- 12V (200mA) DC power adaptor, connected to the unit's DC jack.
- MD-14 RS485 to RS232 Converter (for RS485 units)

### 3.2 Software Requirements

The following are the requirements for the software installation of the "IIM7100A Configuration Tool" PC software.

Your PC configuration must be able to support one of the following Operating system

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

One of the above Operating system must be installed on your computer.

The PC must have a LAN network connection. Both the PC and external unit need to be connected to the same LAN through a HUB.

The PC must have an available D9 (9 pin) serial port.

### 3.3 Connecting the MD-N32:

Before setting – ask your network administrator for two IP addresses, Ports, and subnet masks, one for the MD-N32 unit on the PC end and one for the MD-N32 unit on the Unit end.

#### 3.3.1. Network Connection

Connect each of the 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) (Connect the MD-14's DB9 jack to the MD-N32's DB9 jack).

##### PC side

Connect the MD-N32's DB9 jack to the PC using a crossed linked RS-232 cable.

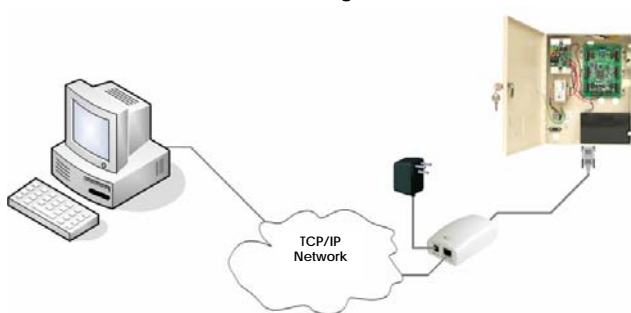
#### 3.3.3. Power Connection

Connect a 12V (200mA) DC power adaptors to both MD-N32 units.

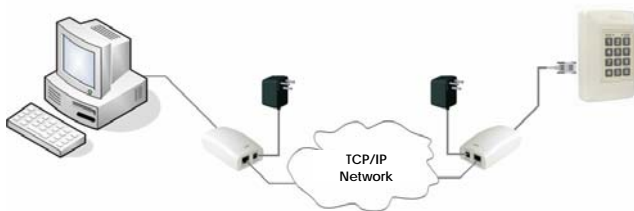
Ensure that both MD-N32's Power LEDs are on.



### 3.3.4. Network connection diagrams



**Figure 3 AC-215 network Connection**

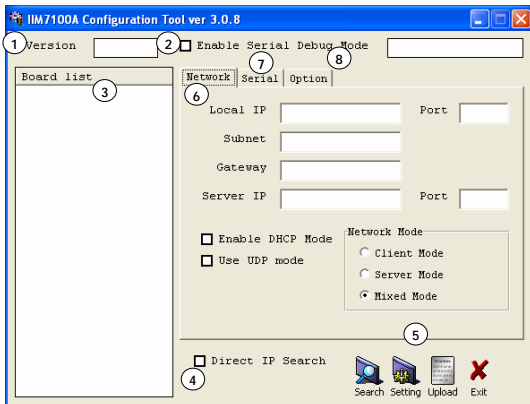


**Figure 4 Network Connection, all other products**

### 3.4 Configuring the MD-N32

#### 3.4.1. Software Overview

Install the IIM7100A Configuration tool follow the installations automated steps.



The software is divided into two, the frame which includes the top, left and bottom panes and the right pane which is a not consistent tab section, divided to three tabs.

The top pane consists of the following:

##### 1. Version

The MD-N32 Firmware version displays in the adjacent box.

##### 2. Debug Mode

Mark this checkbox to enter debug mode where you can monitor the status and the module's socket messages (listen OK, connection failed, etc.) via a terminal.

The left pane consists of the following:

### 3. Board List

When the MD-N32 units connected to the network are found, the located units are displayed as MAC addresses in the "Board List".



#### 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

The bottom pane consists of the following:

### 4. Direct IP Search

Marking the checkbox enables you to type a known IP address of one of the MD-N32 units in a text box that will appear below it.

Click "Search" to locate and confirm the address. Once located, it will appear in the "Board List".

### 5. Buttons

#### a) Search

Searches for operating MD-N32 units connected to the network, the results are displayed as MAC addresses on the board list.

#### b) Setting

Change the configuration of selected MD-N32. Upon clicking this button, the unit is initialized with the changed values entered.

#### c) Upload Button

Upload firmware to the unit via the network.

#### d) Exit

click to exit the software.

The right pane consists of the three Tabs:

### 6. Network Tab

The screenshot shows a configuration window with three tabs: "Network", "Serial", and "Option". The "Network" tab is active. It contains the following elements:

- Field A: Local IP
- Field B: Subnet
- Field C: Gateway
- Field D: Server IP
- Field E: Port (next to Server IP)
- Field F: Port (next to Local IP)
- Checkbox E: Enable DHCP Mode
- Checkbox F: Use UDP mode
- Network Mode section with radio buttons:
  - Client Mode
  - Server Mode
  - Mixed Mode (selected)

The network Tab consists of the following fields:

#### Network Configuration

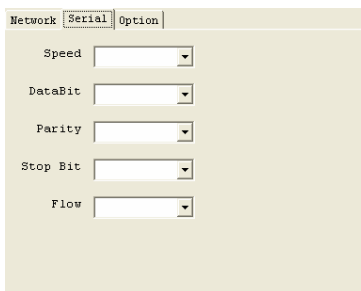
Once a unit is selected by highlighting the MAC address in the "board list", the network information of the selected unit is displayed. You can also insert and revise the information here. The information includes:

- Local IP and Port-** The IP address is displayed and revised here, when the unit is set to operate in mixed or server mode, define the "Listen Port" here.
- Subnet-** the subnet address will appear here, revise it manually if needed.
- Gateway-** the gateway address will appear here, revise manually if needed.

- D. **Server IP and Server Port-** when the unit is set to operate in mixed or client mode, define the server's IP and Port here.
- E. **Enable DHCP Mode-** Set this option to work in DHCP mode. First mark the "Enable DHCP Mode" checkbox, then press the "setting" button. (It takes some time to acquire an IP address from the DHCP Server). When the results on the board list are selected, IP address, Subnet mask, and Gateway are acquired and displayed from the DHCP server.
- F. **Enable UDP Mode-** Set this option to work in UDP mode. First mark the "Enable UDP Mode" checkbox, then press the "setting" button.
- G. **Network Mode -** use the radio to choose the network mode of operation. Choose between
  - a. "Client mode" to set the unit to operate in client mode and attempt to connect to the specified server's IP address and port.
  - b. "Server Mode", which means it listens in on the specified Listen Port, and awaits client connection.
  - c. "Mixed Mode", which means the unit works both as Server and Client.

When the data is sent from a serial device, if socket connection is not established, try to connect to the server IP and port, and resend the data.

### 7. Serial Tab



The screenshot shows a configuration window with three tabs: "Network", "Serial", and "Option". The "Serial" tab is selected and active. It contains five vertically stacked dropdown menus, each with a label to its left and a downward-pointing arrow on its right. The labels are "Speed", "DataBit", "Parity", "Stop Bit", and "Flow".

Once a unit is selected by highlighting the MAC address in the "board list", the serial information of selected unit is displayed. You can also insert and revise the information, the information displayed is **Speed**, **Databit**, **Parity**, **Stop Bit**, and **Flow**. After changes are made, click on the Setting Button for the changes to take affect.

### 8. Option Tab

Network | Serial | **Option**

Inactivity time  (0 ~ 65535 sec) **A**

\* Closes socket connection, if there is no transmission during this time.

Data Packing Condition:

**B** Time  (0 ~ 65535 ms)

**C** Size  (0 ~ 255 Byte)

**D** Char  (Hexacode)

The Option Tab consists of the following fields:

- A. **Inactivity Time-** Define a time for automatic disconnection in idle state, when after establishing socket connection, there is no data transmission, between 0 and 65535 seconds.

### Data Packing Condition

Allows you to designate conditions for serial to Ethernet data transmission, there are three conditions available:

- B. **Time:** Designates a time frame for periodic transmission, between 0 and 65535 milliseconds.
- C. **Size:** Designates data size, for transmission based on data packet size, between 0 and 255 byte.
- D. **Char:** Designates a character defining data packets for serial data conversion, in Hexacode.

After changes are made, click on the Setting Button for the changes to take affect.

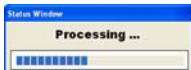
## Connection and Configuration

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### 3.4.2. Configuring the MD-N32

#### Startup

1. Run the "IIM7100A Configuration tool" PC software
2. Click the "Search" button. The processing window will appear.



3. When the search is complete, ensure that you see the correct MD-N32's MAC Addresses in the "Board List".



#### Unit side

1. Select the MAC Address of the MD-N32 unit connected to the applicable networked unit.
2. In the Network Tab's local IP and Port text box, type the first IP Address and port number (1000 recommended) supplied by your network administrator.



3. In the Network Tab's Subnet text box, type the supplied subnet.
4. Type the second IP Address and Port number (1000 recommended) in the "Server IP" text box.
5. In Network Mode, select "mixed mode".
6. In the Serial Tab type the serial configuration (Usually: 9600/8/None/1/None).
7. Click the **Setting** button to send the configuration to the unit.

### **PC side**

8. In the "Board List", select the MAC Address of the unit that is connected to the PC.
9. In the Network Tab's local IP and Port text box, type the second IP Address and port number (1000 recommended) supplied by your network administrator.
10. In the Network Tab's Subnet text box, type the supplied subnet.
11. Type the first IP Address and Port number (1000 recommended) in the "Server IP" text box.
12. In Network Mode, select "mixed mode".
13. In the Serial Tab type the serial configuration (Usually: 9600/8/None/1/None).
14. Click the **Setting** Button to send the configuration to the unit.

### **Finish**

15. Run the applicable application S/W 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 / OR SUBSIDIARIES (ROSSLARE) warrants that the MD-N32 Serial to Ethernet Gateway, to be 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.

## Limited Warranty

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### **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 IT'S SUBSIDIARY'S WARRANTY

THE TERMS OF THIS WARRANTY MAY NOT BE VARIED BY ANY PERSON, WHETHER OR NOT PURPORTING TO REPRESENT OR ACT ON BEHALF OF ROSSLARE.

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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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