Edition:2A

ODM- 88

DVI Matrix Router

USER MANUAL

OptiCIS

USER MANUAL

DVI MATRIX ROUTER : ODM-88

USER MANUAL

DVI MATRIX ROUTER : ODM-88
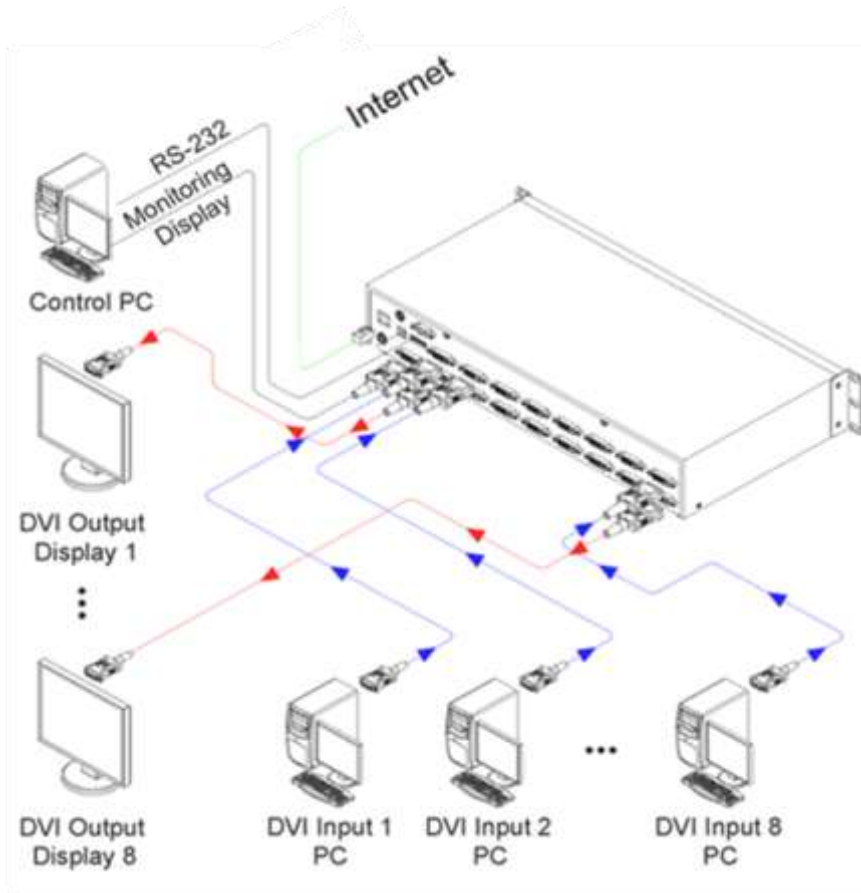
Table of Contents

1   Introduction and Installation

ODM-88 is a high speed cross-switch with 8 DVI inputs and 8 DVI outputs housed in a ruggedized metal enclosure to protect against harsh environments.

1.1   Key features:

- Eight (8) DVI single-link inputs and outputs

- Pixel resolution up to WUXGA (1920x1200) @ 60Hz refresh ratio – with 1.65Gbps transmission bandwidth

- Dynamic EDID management – adapts to overall power management of the system
  - Restores the default EDID to Input port
  - Reads EDID from display and stores EDID to Input port via EEPROM

- Long distance extension of DVI Input and Output by Optical DVI cables or modules

- Re-Clocking of R,G,B of DVI inputs and outputs

- Various Control Interfaces:
  - Front panel key input
  - Input commands through RS232 and LAN
  - Graphical user interface using Ethernet and Proprietary PC software in the shipped system

- Hierarchical connection of multiple ODM-88 - up to 3 levels to increase the number of display connections or source connections

- DIP switch for up to 255 different ID settings for multiple use of ODM-88 over RS232 connection

- IP setting for Ethernet – point-to-point and local network control

1.2   ODM-88 Shipping Content:
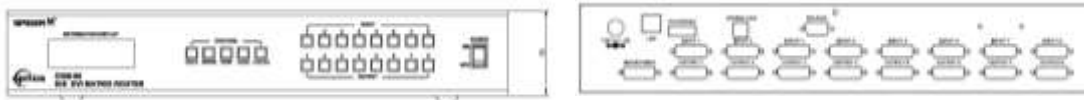
- ODM-88 Mainframe: 1 EA

- AC/DC power adaptor (12V/5A, AC110V-240V): 1 EA

- AC power cord: 1 EA

- User Manual: 1 EA

- PC control software CD :1 EA

- Firmware download cable(USB): 1 EA

- RS-232 cable (crossed type): 1 EA

- RJ-45 UTP cable (crossed type): 1 EA

- Rack ear: 2 EA

1.3 Safety Instructions

- Use of the equipment in a manner not specified by the manufacturer may result in irre-coverable damage.

- Use the assigned power cord or power adaptor shipped with the system.

- Connect the power cord to the normal and safe outlet.

- Keep the unit away from liquid, magnetic and combustible substances.

- Do not place heavy weight on the unit.

- Move away from noisy environment such as vibration or impact.

- Do not install the unit vertically.

- Do not disassemble the unit.

- When malfunction or breakdown occurs, contact factory immediately.

1.4 Physical Description

1.4.1 Front Panel

- ODM-88 chassis is mountable on a 19" standard rack with rack ears.   Control keys, Input-Output buttons and the status LCD display, are placed on the front panel as shown in Figure 1-1.

- Control keys: ①

  ➢ **CREATE** – Configure Input-Output setup

  ➢ **PREVIEW** – Displays current status of Input-Output configuration

  ➢ **CANCEL** - Resets all Outputs configured with an Input or Reject any key inputs

  ➢ **ENTER** - Accepts keyed inputs and completes configuration of Input-Output setup

  ➢ **FUNCTION** - Configures IP for Ethernet, baud rate for RS232 and EDID

- Input-Output Buttons:

  ➢ Eight (8) LED inputs: ②

  ➢ Eight (8) LED outputs: ③

- Status display: LCD displays the control status in 20x4 text mode: ④

- POWER ON/OFF button: ⑤
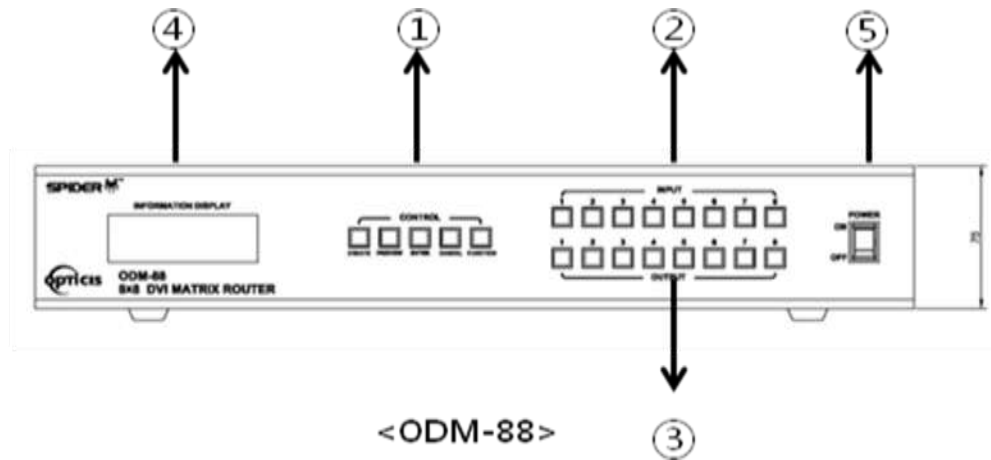
Figure 1-1 Front Panel

1.4.2   Rear Panel

- All Input ports, Output ports, interface ports and power connections are placed on the rear panel as follows;

  - ➢ Eight (8) single link DVI inputs: ①

  - ➢ Eight (8) single link DVI outputs: ②

  - ➢ DIP switch - 8 bits to set ID (identifier) in case of multiple connection of ODM-88: ③

  - ➢ RS-232 Serial port: ④

  - ➢ 10/100 Base Ethernet port: ⑤

  - ➢ Firmware download port: ⑥

  - ➢ DC power receptacle: ⑦

  - ➢ MONITORING DVI port – monitors a designated source for test purpose: ⑧

[Note] For ODM-88, Output #1 will be disconnected automatically when monitoring port is connected and working.
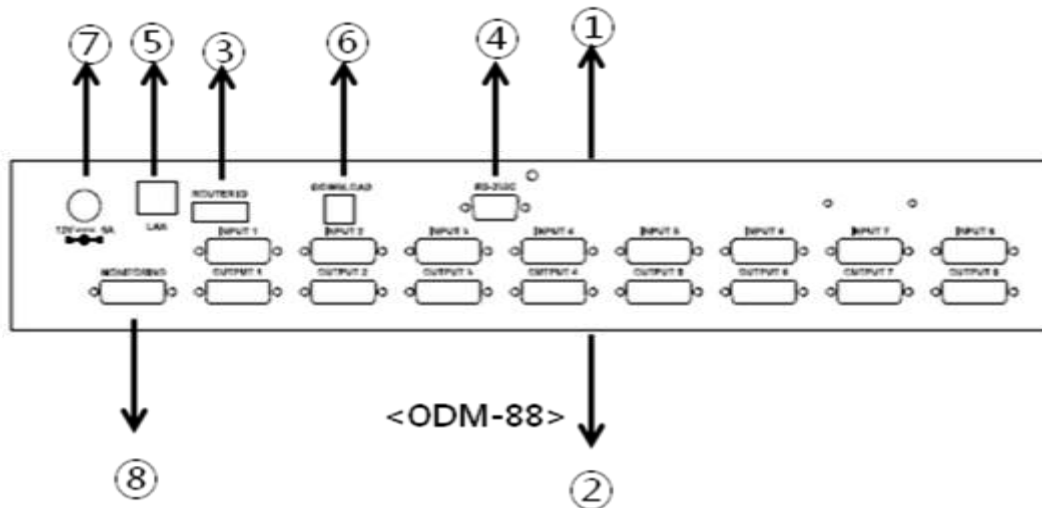
Figure 1-2 Rear Panel

1.5 EDID Control and Configuration

- EDID (Extended Display Identification Data) is an information set that is provided by a display to describe its capabilities to a graphic source.   It enables a graphic source to identify the connected display.

- The information set includes: manufacturer, product type, phosphor or filter type, timings supported by the display, display size, luminance data and (for digital displays only) pixel mapping data.

- Once the graphic source reads the information set (usually during the booting process), the EDID determines the optimal format for a connected display.

- ODM-88 supports storing of EDID information to an EEPROM for each Input by dedicated PC software.

- ODM-88 has two-way EDID settings, default EDID from factory and direct readout of stored EDID of any target display.   The default EDID setting from the factory is 1080p (1920 x 1080) @ 60Hz for all inputs.
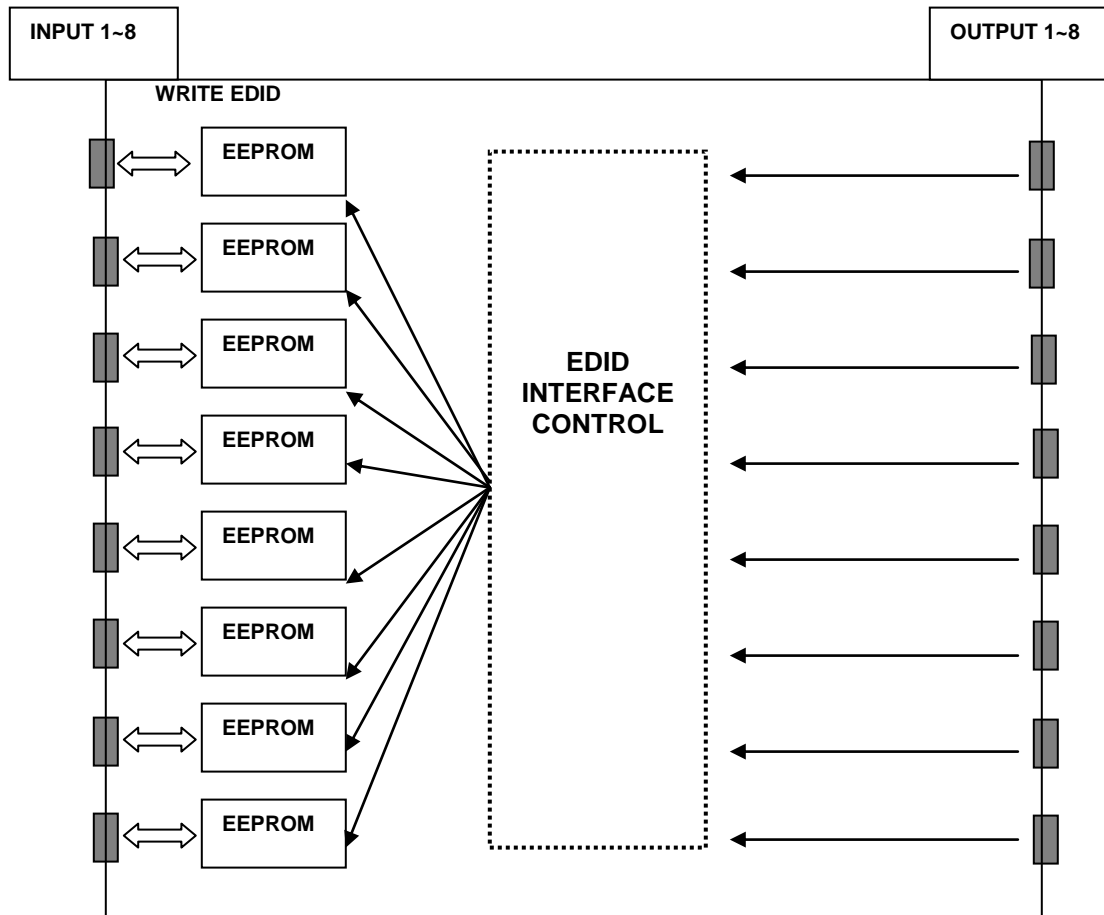
Figure 1-3 Concept drawing for setting EDID in ODM-88

- As depicted in Figure 1-3, once EDID is configured, each EDID is stored in EEPROM at the front of the DVI Input.   As a result, the video sources are able to read EDID from the EEPROM during boot-up; even though the ODM-88 and connected displays are not powered on yet.

1.6 Connecting Optical DVI cables and modules for extended distance

- ODM-88 supports connection of Optical DVI cables or modules to all inputs and outputs. The use of copper DVI cables over 3m (10ft.) is not recommended.

1.7 Initializing ODM-88 and Installation Guide

1.7.1   Initialization

Plug the provided AC power cord to the AC/DC power adaptor then plug the DC cord to the +12VDC connector on the rear panel; make sure that the arrow mark on the connector of the DC cord is aligned.

Push POWER button on the front panel then observe:

- ➢ Red LED (on the button) – will light up

- ➢ Display – will display "ODM-88……….Initializing"

> ➢ Green and Red lights on the Input and Output – will sweep on.

> ➢ Display – will show **"USER MODE"**

> ➢ The system is now ready to accept commands.

1.7.2 Rack Mounting

- Before installing cables, attach two rack ears on left and right side of ODM-88 using the supplied screws.

1.7.3 Control Connection

- Commands and functions of ODM-88 are transferred through the RS-232 and Ethernet connection.

1.7.4 RS-232 Control

- Connect the ODM-88 to a video controller or PC with the supplied RS-232 cable.

1.7.5 Ethernet Control

- Connect the ODM-88 to a video controller or PC with the RJ-45 connector/cable.

1.7.6 Direct connection of PC or video controller to the ODM-88: Use a crossover Ethernet cable.

- Typically, a PC is connected to the network and configured for dynamic IP address by a network DHCP server. If the PC is connected directly to the ODM-88, the network server will not be able to address the PC.

- In this case, the PC should be manually set in a static IP address. Refer to Setting the PC IP address in Chap. 2.8.1.

1.7.7 LAN connection of ODM-88: Direct Ethernet connection.

- ODM-88 is configured at the factory with the default IP address of 192.168.0.88. Before connecting to your network, verify the IP address on your network.

- The IP address can be reconfigured by front key buttons or command lines over RS 232 and Ethernet.

2 Communications Setup

2.1 Setting the Router ID of ODM-88

- If multiple units of ODM-88 with a video controller or PC controller are used, each ODM-88 should be identified with the DIP switch located on the rear panel marked as Router ID. Each DIP switch has 8 digits, one (1) at the up position and zero (0) at the down position; possible ranges are 000 to 255 and the default factory setting is 255.

Example Setting

In case of 000	In case of 001	In case of 255
↓ ON 1 2 3 4 5 6 7 8	↓ ON 1 2 3 4 5 6 7 8	↓ ON 1 2 3 4 5 6 7 8
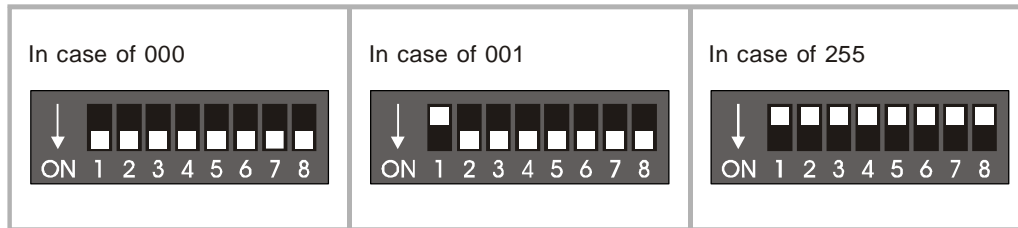
- All command codes are required to have the Router ID in its header.   For more details, refer to the command code instruction in Chapter. 3.2.

2.2   Front Panel Interface

- All communication with ODM-88 is possible using the front input keys - without video controller or control PC.

  ➢ Before pressing control keys, make sure that the LCD display shows **USER MODE**.

  ➢ **CREATE, PREVIEW** and **CANCEL** keys are activated by pressing each key - the activated key is executed by pressing **ENTER** key.

  ➢ **The FUNCTION** has the ability to select multiple features on the ODM-88.

  ■ Repeatedly pressing the **FUNCTION** key will display each feature on the LCD display.

  ■ To save the selected feature, press **ENTER -** to escape current setting, press another control key; i.e. **CREATE** or **PREVIEW**.

2.3   CREATE Mode

- Configures Input-Output connections for cross-switching.

  1) Press CREATE button once to activate (orange color LED is on) - LCD will display the current Input and Output configuration.

  2) Select and Press an input key (the respective Green LED is on) – LCD will display current configured Output (Red LED is on).

  3) Press single or multiple Output buttons to select desired outputs (Red LED is on for each selected Output button).

  4) Outputs can be deselected by pressing the respective Output button (Red LED is off)

  5) Press ENTER to save the selected configuration.

  6) To configure the next Input to Output or outputs, repeat steps 1 to 5.

2.4   PREVIEW Mode

- PREVIEW mode shows current Input-Output configuration.

  1) Press PREVIEW to see current Input-Output connection status on the LCD display.

     Press any Input button (Green LED is on) to see the current connected Output (indicated by Red LED is on)

     To preview status of another Output, press another Input button.

     To see the status of all Input-Output connections, press **PREVIEW** then **ENTER**.

2.5 CANCEL Mode

- To Cancel each Input-Output configuration:

    1) Press **CANCEL** then press the desired Input button to be cancelled.   The configured Output buttons LED will be on.

    Press ENTER to complete cancellation.

2.6 FUNCTION Mode

Press FUNCTION to view features – pressing FUNCTION repeatedly will cycle the following features:

- EDID Read/Write

- Monitor Output Selection

- RS-232 Baud Rate

- Gateway

- Subnet Mask

- IP Address

- Mac Address

- Port Number

- Factory mode

2.6.1 EDID Read/Write: press FUNCTION key once

- Reads EDID from connected displays and stores information to Input ports EEPROM.

    ```
    =========Function Mode========
             EDID Read/Write
        IN  :     1. 2. 3. 4. 5. 6. 7. 8
        OUT:      1. 2. 3. 4. 5. 6. 7. 8
    ```

- IN: INPUT Chanel , OUT : OUTPUT Chanel

- Press Front panel INPUT key and choice channel, than choice Output channel which one need changing.

- The Under Bar mark represents selected and activated.(1~8chanel)

- Example1: Choice INPUT 1 - OUTPUT 1, INPUT 2 - OUTPUT 2 than Press

    Enter Key, will Display 1,2 channel's EDID Read/Write

- Example2: Choice INPUT 1,2,3,4,5,6,7,8 – OUTPUT 1, than Press Enter key,

    system will be read the first (1)output channel EDID Data, and write to the

    INPUT 1~8 channel EEPROM.

- Press **ENTER** button to complete the configuration, store the information and execute the process.

2.6.2 MONITOR OUTPUT SELECTION – To verify the video source press FUNCTION key twice.

1) Connect a display to the MONITORING port and any video sources to the DVI Input ports on the rear panel.

   Press the FUNCTION key once – the LCD displays:

   ============ Function ==========
   >   Monitor Output sel.
   >   Old Input Channel: 1
   >   New Input Channel:

   Press Input button of the Input to be monitored.

   Press **ENTER** to finish the process.

[Note] For ODM-88, Output #1 will be disconnected automatically when monitoring port is connected and working.

2.6.3 RS-232 BAUD RATE: press FUNCTION three times

- Press Input 1 button for 19200

- Press Input 2 button for 38400

- Press Input 3 button for 57600

- Press Input 4 button for 115200

- Press **ENTER** to complete the process and return to the User mode.

  =========Function Mode========
  >   RS-232 Baud Rate
  >   Old Baud Rate: 19200
  >   New Baud Rate: 19200

[Note] Baud Rate of 19200 bps is highly recommended.

2.6.4 GATEWAY: press FUNCTION four times

- The Under Bar mark represents selected and activated.

- Pressing Input 1 button repeatedly changes the selected number from 0, 1, 2...9.

- The Input 2 button decreases the number.

- Input 3 and 4 buttons moves the Under Bar left and right.

  =========Function Mode========
  >   Gate Way
  >   192. 168. 000. 001
  >   1<u>9</u>2. 168. 000. 001

- Factory setting is 192.168.000.001.

- Press **ENTER** button to complete the process and return to the **User mode**.

2.6.5   SUBNET MASK: press FUNCTION five times

- The Under Bar mark represents selected and activated.

- Pressing Input 1 button repeatedly changes the selected number from 0, 1, 2...9.

- The Input 2 button decreases the number.

- Input 3 and 4 buttons moves the Under Bar left and right.

  ========Function Mode========

        Subnet Mask
        255. 255. 255. 000
        255. 255. 255. 000

- Factory setting is 255. 255. 255.000.

- Press **ENTER** button to complete the process and return to the **User mode**.

2.6.6   IP ADDRESS: press FUNCTION six times

- The Under Bar mark represents selected and activated.

- Pressing Input 1 button repeatedly changes the selected number from 0, 1, 2...9.

- The Input 2 button decreases the number.

- Input 3 and 4 buttons moves the Under Bar left and right.

  ========Function Mode========

        IP Address
        192. 168. 000. 088
        192. 168. 000. 088

- Factory setting is 192. 168. 000. 088.

- Press **ENTER** button to complete the process and return to the **User mode**.

2.6.7   MAC ADDRESS: press FUNCTION seven times

- In computer networking, a Media Access Control address (MAC address) is a unique identifier assigned to most network adapters or network interface cards by the manufacturer for identification, and used in the Media Access Control protocol sub layer. If assigned by the manufacturer, a MAC address usually encodes the manufacturer's registered identification number. It may also be known as an Ethernet Hardware Address (EHA), hardware address, adapter address, or physical address.

  ➢ There are three numbering spaces, managed by the Institute of Electrical and Electronics Engineers (IEEE), which are in common use for formulating a MAC address:

  ➢ ODM-88 is shipped with a default MAC ADDRESS.   The MAC ADDRESS of ODM-88 can be edited, however, it is strongly not recommended.

  ➢ Editing MAC ADDRESS

    ▪ The Under Bar mark represents selected and activated.

    ▪ Pressing Input 1 button repeatedly changes the selected number from 0, 1, 2...9.

- ▪ The Input 2 button decreases the number.

- ▪ Input 3 and 4 buttons moves the Under Bar left and right.

2.6.8 PORT NUMBER: press FUNCTION eight times

- The Under Bar mark represents selected and activated.

- Pressing Input 1 button repeatedly changes the selected number from 0, 1, 2...9.

- The Input 2 button decreases the number.

- Input 3 and 4 buttons moves the Under Bar left and right.

  =========Function Mode========

  Port Number
  Old Data: 03000
  New Data: 03000

  - ▪ **Factory setting is 03000.**

  - ▪ Press **ENTER** button to complete the process and return to the **User mode**.

2.6.9 FACTORY MODE: press FUNCTION nine times

- Press **ENTER** to reset and restore factory default settings.

2.7 Serial Communication

2.7.1 HyperTerminal

- ODM-88 provides command line interface through serial port, RS-232.

- Hyper Terminal is an effective serial emulation software to communicate with ODM-88 when Microsoft Windows operating system is used to control ODM-88.

- Hyper Terminal connection procedures:

  1) Connect the ODM-88 to a PC as described in section RS-232 Control.

  2) Select Start > Programs > Accessories > Communications > HyperTerminal
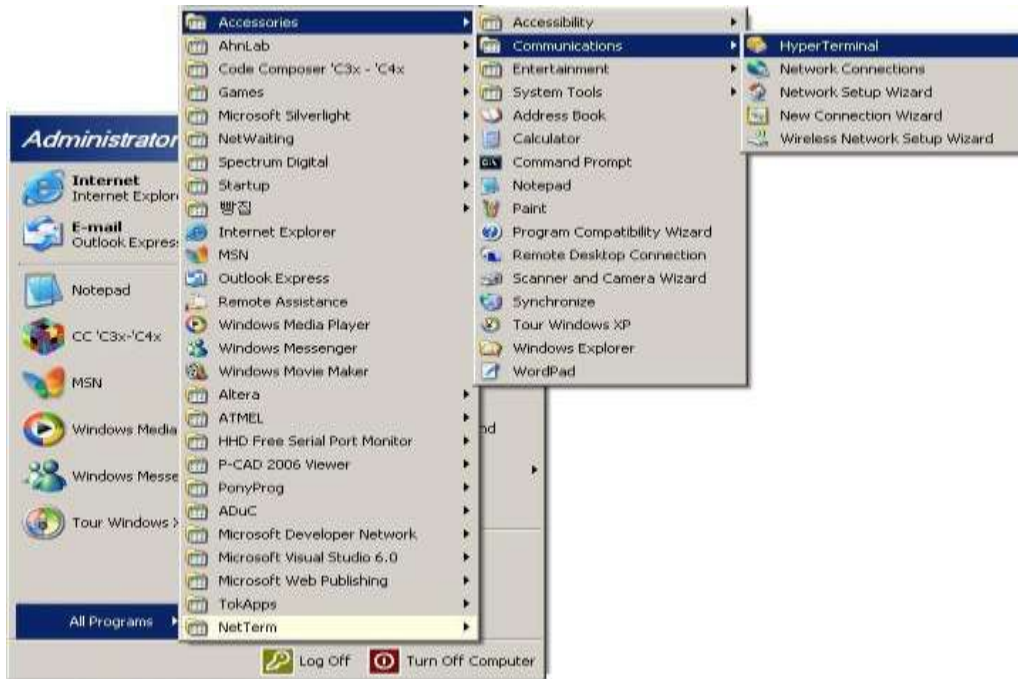
Figure 2-1 HyperTerminal Access

3) **Connection Description Dialog:** Enter a name and choose an icon.

Figure 2-2 Connection Description Dialog

4) Selecting **OK** displays the **Connect To** dialog. In the **Connect To** dialog box, ignore the **Country, Area Code** and **Phone Number** fields and select the available COM port to which ODM-88 is connected.

Figure 2-3 Connect To Dialog

5) Select **OK** to go to the **COM Properties** dialog box.

Figure 2-4 COM Properties Dialog

6) Configure the port settings as follows;

- Bits per second (baud rate): 19200 (recommended)
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

7) Select **OK** to display the HyperTerminal window

8) Press ENTER on ODM-88 to begin communication with ODM-88

9) Type serial command set. (Refer to Chap. 3.2)

2.7.2 Telnet

- Telnet is a terminal emulation program for TCP/IP networks such as the Internet.

- The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network

2.7.3 Launching Telnet Session

1) Select **Start** menu and select **Run**.

2) Type **command** as shown below.
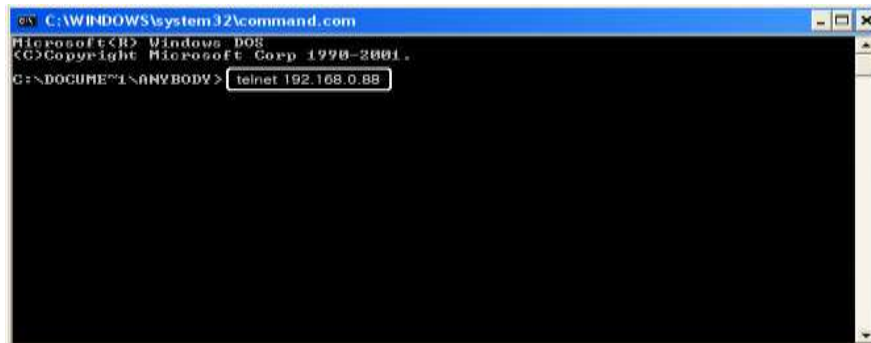
Figure 2-5 Run Windows

3)   Select **OK** to open the command window.

4)   Type the command: **telnet 192.168.0.88**

[Note] 192.168.0.88 is the default IP address of ODM88. Change IP address as needed. (Refer to Chap. 2.6.6 and 2.8)

5)   Press **ENTER**: "DVI Matrix Router Connected" will be displayed.

6)   Type serial command set. (Refer to Chap. 3.2)
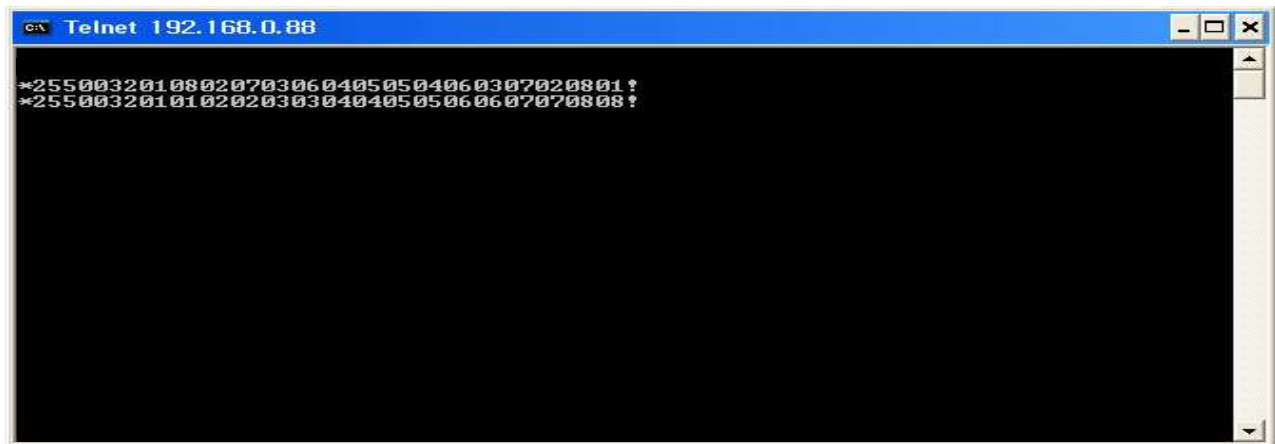
Figure 2-6 Telnet connected

2.8 Ethernet Control

- The ODM-88 can be controlled through the 10/100 base Ethernet port using either graphic user interfaces or a command line interface.

- The graphic user interfaces uses proprietary PC software.

- The physical connection of ODM-88 can be made on the standard LAN or point to point connection.

- The command line interface uses a Telnet session to a private port.

- To connect ODM-88 to Ethernet, specify a static IP address for ODM-88 (Refer to Chap. 2.6.6). The default IP address is 192.168.000.088.

2.8.1   SETTING THE IP ADDRESS of the PC

- If the PC is connected to the ODM-88 through the 10/100 Base Ethernet port, a static address should be configured on the PC:

  1)   Use Ethernet crossover cable (provided with ODM-88 system) for point to point direct connection between PC or controller and ODM-88 or use Ethernet strait cable to connect ODM-88 on LAN.

  2)   From the PC: select **Start** menu, select **Control Panel**.

  3)   In the **Control Panel**, select **Network Connections**.

  In **Network Connections**, right click on **Local Area Connection** and select **Properties** tab.
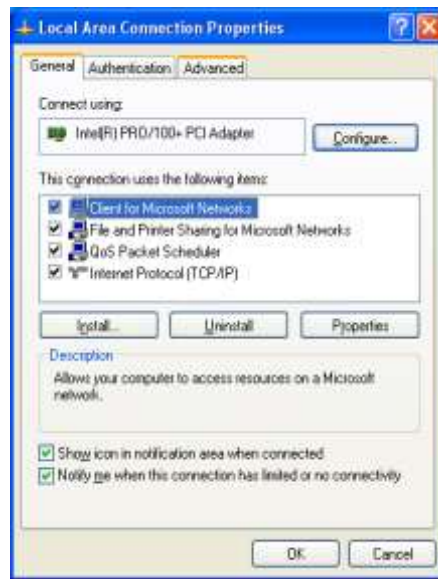
Figure 2-7 Local Area Network Properties

Select **Internet Protocol (TCP/IP)** and click on **Properties**. In the Internet Protocol (TCP/IP) Properties, click **Use the following IP address** radio button. Enter IP address compatible with the current IP address of the ODM-88.

- For point to point direct connection, if the IP address of ODM-88 is 192.168.000.088, the PC IP address should be chosen as 192.168.000.nnn; where nnn ranges 000 to 255 except 088. (Refer to Chap. 2.6.6)

- For LAN connection, maintain existing PC IP address then consult you network manager to obtain available IP address for ODM-88.
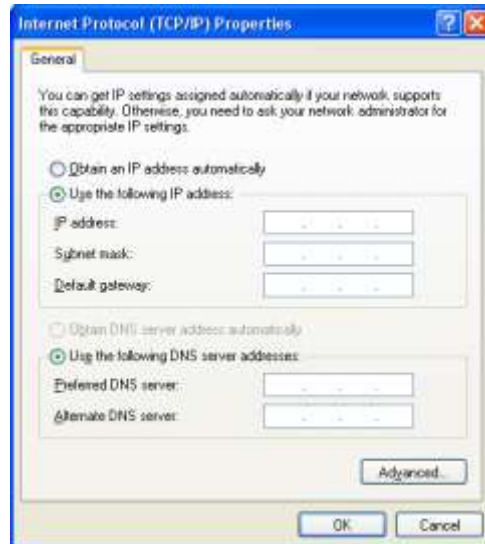
Figure 2-8 PC IP address setting

Select OK to terminate IP setup session.

3   Operation

- ODM-88 has various operational interfaces: Front Panel Key Input, Serial Command Lines, and Proprietary PC Software through RS-232, Ethernet.

- Proprietary PC Software is the most efficient since all other methods use command line interface.

3.1   Front Panel Operation

- Please Refer to Chap. 2.2 for detail explanation of front keys functions.

- Front Panel Operation examples:

- 8 Displays with 3 different typed of EDID:

Port No.	Input	Output
1	Source 1	Display 1 (EDID type A)
2	Source 2	Display 2 (EDID type B)
3	Source 3	Display 3 (EDID type B)
4	Source 4	Display 4 (EDID type A)
5	Source 5	Display 5 (EDID type B)
6	Source 6	Display 6 (EDID type C)
7	Source 7	Display 7 (EDID type C)
8	Source 8	Display 8 (EDID type A)

- The arrows represent :

  ➢ Input 1 to Output 1 and 4

  ➢ Input 2 to Output 2

  ➢ Input 3 to Output 3

  ➢ Input 4 to Output 5

  ➢ Input 5 no connection

  ➢ Input 6 to Outputs 6 and 7

  ➢ Input 7 to Output 8

  ➢ Input 8 no connection

- Operation is executed in two steps:

  ➢ Set EDID for each Input port for proper graphic signal transmittal.

  ➢ Configure Input-Output for cross-switching as configured above.

1) Press **FUNCTION** key – LCD will display EDID Read/Write:

=========Function Mode========

EDID Read/Write
IN   : 1.2.3.4.5.6.7.8
OUT: 1.2.3.4.5.6.7.8

Configure as shown below:

=========Function Mode========

EDID Read/Write
IN   : 1.2.3.4.5.6.7.8
OUT: 1.2.3.4.5.6.7.8

[Note] If a source is connected to two or more different displays, assigning the lower resolution EDID to Input port EEPROM is highly recommended.   Assigning higher resolution will show 'OUT OF RANGE'.

Press **ENTER** to save.

[Note] EDID setting is valid until a new EDID setting is processed - even though the ODM-88 is powered on and off repeatedly.

To configure Input-Output, press **CREATE**; current Input-Output configuration will be displayed.

========= Create Mode ========

I: 1   2   3   4   5   6   7   8   N
     | | | | | | | | |
O: 1   2   3   4   5   6   7   8   M

Where **N** is **N**ot defined for the monitoring, **M**.

Press Input button **1** (Green LED is on) – LCD displays:

========= Create Mode ========

Input Channel NUM.: 1

Out: 1

New:

Press Output 1 and 4 (number **1 and 4)** as the selected outputs for the given Input.
Press **ENTER** key and then turn back to the **user mode**.

[Note] Specific Input can be connected to multiple Output channels. However, one Output channel cannot share multiple Input channels.

Repeat above process 4 to 5 for other Input channels.

Press **PREVIEW** key to review newly saved Input-Output configuration;

========= Preview Mode ========

I: 1   2   3   4   5   6   7   8   N
     | | | | | | | | |
O: 1   2   3   4   5   6   7   8   M

[Note] Pressing ENTER key completes the Input-Output configuration.

3.2 Command Line Operation

- Command line interface is performed through RS-232 or Ethernet.

- The commands are coded in ASCII and HEXA. All descriptions are shown in Table 3.1. A command line consists of string of ASCII or HEXA codes in series as shown below;

    Start (1 Byte) + **Router ID** (3 Bytes) + **Command** (1 Byte)

    + **Data Length** (3 Bytes)

    + **Output Number** (2 Bytes) + **Input Number** (2 Bytes)

    + **Output Number** (2 Bytes) + **Input Number** (2 Bytes) + …..

    + **End** (1 Byte)

- A command line allows execution of only one command. Multiple commands require execution of multiple strings; one command per string.

- All strings begin with **Start** byte.

- **Router ID** can be selected within the range of 000 to 255; written in 3 bytes. (Default factory setting is 255. Refer to Chap. 2.1.)

- **Data Length** represents total number of all bytes. Data Length is determined by the number of channels in the command line.

    ➢ For example: Configuring 4 Input-Output connections (8 channels), data length is 016 in ASCII - 16 bytes in base of 2 bytes per channel regardless of Input and Output.

- **Input channel Number** follows **Output channel Number** - designated as a pair.

- A command line closes with **End** byte.

Table 3.1 Descriptions of Command Codes

Command Format	ASCII	HEX	Description	Byte
Start	*	0x2A	Header Code	1
Router ID	Variable	Variable	Router ID Value	3
Create	0	0x30	Connect or Disconnect the Selected Input and Output channels	1
Preview	1	0x31	Preview all connected channels	1
Cancel	2	0X32	Cancel selected channel connection	1
Upload Data Request	3	0x33	Upload connection information to the controller	1
Rolling	4	0x34	Rotates Input and Output connection	1
Upload Router ID	5	0x35	Upload Router ID to controller	1
Rolling Stop	6	0x36	Stop rolling command	1
Check Connection	7	0x37	Upload connection integrity	1
Upload One Channel Data Request	8	0x38	Uploads the connection status of selected channel	1
Baud Rate Setting	@	0x40	Change Baud rate of RS-232	1
Read Output Device EDID	A	0x41	Read EDID from attached display	1
Default EDID Setting	B	0x42	Restore factory default EDID on EEPROM	1

Read Input EEPROM	C	0x43	Read EDID from EEPROM	1
EDID Write	D	0x44	Read EDID from display and write to EEPROM	1
Edit EDID Write	E	0x45	Edit EDID Write mode	1
EDID Data	F	0x46	Send divided data by two	1
Monitoring	G	0x47	Set the monitoring channel	1
Data Length		Variable		3
Output channel		Variable	Selected Output channel	2
Input channel		Variable	Selected Input channel	2
End	!	0x21	Tail Code	1

- In response to the command line Input to OMD-88, the following ACK signals are re-turned to the controller shown in Table 3.2.

Table 3.2 Descriptions of Acknowledge (ACK) Signals

Acronym	Bytes	HEX Codes	Description
Error	1	0x05	Router received incorrect data packet
RX Complete	1	0x06	Router received correct data packet
Job Complete	1	0x07	Completed operation per command
Connection OK	1	0xA0	Successful connection

- ACK will be returned after command codes are sent.

- If the command codes are successfully done, 0x06, 0x07 will be returned. But if it is failed, 0x05 will follow it by return. Some command codes have special ACK and it is described under the each example command code below.

The followings illustrate example codes for various applications to be utilized on HyperTerminal for RS-232 and on Telnet for TCP/IP.

3.2.1 Create:

- Configure cross-switching of inputs and outputs.

- Command line format:

    ➢ *Start (*)* + Router ID (3 byte) + *Command (0)* + Data Length (Variable) + Output channel (2 byte) + Input channel (2 byte) + … + *End (!)*

- ACK Return Signal:

    ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Example 1: One (1) channel connection of Output Channel 1 and Input Channel 1

	Start	Router ID			Command	Data Length			Output Channel		Input Channel		End
ASCII	*	2	5	5	0	0	0	4	0	1	0	1	!
HEX	2Ah	32h	35h	35h	30h	30h	30h	34h	30h	31h	30h	31h	21h

Example 2: One (1) channel disconnection of Output Channel 1 by setting "0" on the Input channel bytes.

	Start	Router ID			Command	Data Length			Output Channel		Input Channel		End
ASCII	*	2	5	5	0	0	0	4	0	1	0	0	!
HEX	2Ah	32h	35h	35h	30h	30h	30h	34h	30h	31h	30h	30h	21h

Example 3: Two (2) channel connection: Output Channel 1 → Input Channel 8 & Output Channel 8 → Input Channel 1

	Start	Router ID			Command	Data Length			Output Channel		Input Channel	
ASCII	*	2	5	5	0	0	0	8	0	1	0	8
HEX	2Ah	32h	35h	35h	30h	30h	30h	38h	30h	31h	30h	38h

Output Channel		Input Channel		End
0	8	0	1	!
30h	38h	30h	31h	21h

Example 4: Eight (8) channel direct - through connection (for ODM-88)

	Start	Router ID			Command	Data Length			Output Channel		Input Channel	
ASCII	*	2	5	5	0	0	3	2	0	1	0	1
HEX	2Ah	32h	35h	35h	30h	30h	33h	32h	30h	31h	30h	31h

Output Channel		Input Channel		…	Output Channel		Input Channel		Output Channel		Input Channel		END
0	2	0	2	...	0	7	0	7	0	8	0	8	!
30h	32h	30h	32h	…	30h	37h	30h	37h	30h	38h	30h	38h	21h

3.2.2 Preview: Shows all Input-Output configurations

- Command line format:
  - ➢ Start (*) + Router ID (3 byte) + Command (1) + Data Length (000) + End (!)
- ACK Return Signal:
  - ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	1	0	0	0	!
Hex	2Ah	32h	35h	35h	31h	30h	30h	30h	21h

3.2.3 Cancel: Cancels configuration of outputs for each Input.

- Command line format:
  - ➢ *Start (*)* + Router ID (3 byte) + *Command (2)* + Data Length (variable) + Input Channel (2 byte) + *End (!)*
- ACK Return Signal:
  - ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Example: Disconnect Input Channel 1

Byte	Start	Router ID			Command	Data Length			Input Channel		End
ASCII	*	2	5	5	2	0	0	2	0	1	!
Hex	2Ah	32h	35h	35h	32h	30h	30h	32h	30h	31h	21h

3.2.4 Upload Data Request: Uploads connection data to the controller.

- Command line format:

  ➢ Start (*) + Router ID (3 byte) + Command (3) + Data Length (000) + End (!)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	3	0	0	0	!
Hex	2Ah	32h	35h	35h	33h	30h	30h	30h	21h

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

- The Connection Data represents the connection information of router

* Connection Data for ODM-88: 1-1, 2-2, 3-3, 4-4, 5-5, 6-6, 7-7, 8-8

Byte	Start	Router ID			Command	Data Length			Output Channel		Input Channel	
ASCII	*	2	5	5	3	0	3	2	0	1	0	1
Hex	2Ah	32h	35h	35h	33h	30h	33h	32h	30h	31h	30h	31h

Output Channel		Input Channel		…	Output Channel		Input Channel		Output Channel		Input Channel		END
0	2	0	2	....	0	7	0	7	0	8	0	8	!
30h	32h	30h	32h	……	30h	37h	30h	37h	30h	38h	30h	38h	21h

3.2.5 Rolling command

- Rotates Input at fixed Output.

- Checks connection status of all inputs and outputs by changing them in sequence.

- Format of Command Line:

  ➢ *Start (*)* + Router ID (3 byte) + *Command (4)* + Data Length (Variable) + Output Channel (2 byte) + Input Channel (2 byte) + … + *End (!)*

  ➢ Example: To rotate three(3) inputs1, 2, and 3 on three (3) outputs 1, 2, and 3.

- ACK Return Signal:

  ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

1) Output Channel 1 → Input Channel 1, Output Channel 2 → Input Channel 2, Output Channel 3 → Input
   Channel 3

Byte	Start	Router ID			Command	Data Length			Output Channel	Input Channel
ASCII	*	2	5	5	4	0	1	2	0	1	0	1
Hex	2Ah	32h	35h	35h	34h	30h	31h	32h	30h	31h	30h	31h

Output Channel		Input Channel		Output Channel		Input Channel		End
0	2	0	2	0	3	0	3	!
30h	32h	30h	32h	30h	33h	30h	33h	21h

2) Output Channel 1 → Input Channel 2, Output Channel 2 → Input Channel 3, Output Channel 3 → Input
   Channel 1

Byte	Start	Router ID			Command	Data Length			Output Channel	Input Channel
ASCII	*	2	5	5	4	0	1	2	0	1	0	2
Hex	2Ah	32h	35h	35h	34h	30h	31h	32h	30h	31h	30h	32h

Output Channel		Input Channel		Output Channel		Input Channel		End
0	2	0	3	0	3	0	1	!
30h	32h	30h	33h	30h	33h	30h	31h	21h

3) Output Channel 1 → Input Channel 3, Output Channel 2 → Input Channel 1, Output Channel 3 → Input
   Channel 2

Byte	Start	Router ID			Command	Data Length			Output Channel	Input Channel
ASCII	*	2	5	5	4	0	1	2	0	1	0	3
Hex	2Ah	32h	35h	35h	34h	30h	31h	32h	30h	31h	30h	33h

Output channel		Input channel		Output channel		Input channel		End
0	2	0	1	0	3	0	2	!
30h	32h	30h	31h	30h	33h	30h	32h	21h

3.2.6 Upload Router ID

- Uploads Router ID to the controller or PC.

- Command line format:

  ➢ Start (*) + Router ID (3 byte) + Command (5) + Data Length (000) + End (!)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	5	0	0	0	!
Hex	2Ah	32h	35h	35h	35h	30h	30h	30h	21h

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

  ➢ If the Router ID is 015, ACK signal is as follows:

Connection DATA

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	0	1	5	5	0	0	0	!
Hex	2Ah	30h	31h	35h	35h	30h	30h	30h	21h

3.2.7 Rolling Stop

- Rolling stop command.

- Command line format:

  ➢ Start (*) + Router ID (3 byte) + Command (6) + Data Length (000) + End (!)

- ACK Return Signal:

  ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	6	0	0	0	!
Hex	2Ah	32h	35h	35h	36h	30h	30h	30h	21h

3.2.8 Check Connection

- Check status of all connections

- Command line format:

  ➢ Start (*) + Router ID (3 byte) + Command (7) + Data Length (000) + End (!)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	7	0	0	0	!
Hex	2Ah	32h	35h	35h	37h	30h	30h	30h	21h

- By sending **Check Connection** command to the router, ODM-88 responds with the following **ACK** signal to controller :

  ➢ Good connection: **0xA0 (A0h)**

  ➢ Bad connection: **0x05 (05h)**

3.2.9   Upload One Channel Data Request

- Upload connection status of a selected Output channel.

- Command line format:

- *Start (*) *+ Router ID (3 byte) + *Command (8)* + *Data Length (002)* + Output channel (2 byte) + *End (!)*

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

Input 6 → Output 1 connection

Byte	Start	Router ID			Command	Data Length			Output channel		End
ASCII	*	2	5	5	8	0	0	2	0	1	!
Hex	2Ah	32h	35h	35h	38h	30h	30h	32h	30h	31h	21h

Connection DATA

Byte	Start	Router ID			Command	Data Length			Input channel		End
ASCII	*	2	5	5	8	0	0	2	0	6	!
Hex	2Ah	32h	35h	35h	38h	30h	30h	32h	30h	36h	21h

3.2.10   Read Output Device EDID

- Read EDID from connected display.

- Command line format:

  ➢ *Start (*) *+ Router ID (3 byte) + *Command (A)* + *Data Length (002)* + Output channel (2 byte) + *End (!)*

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

Example: Read EDID from a Display connected to Output 1

Byte	Start	Router ID			Command	Data Length			Output Channel		End
ASCII	*	2	5	5	A	0	0	2	0	1	!
Hex	2Ah	32h	35h	35h	41h	30h	30h	32h	30h	31h	21h

Connection DATA

Byte	Start	ID			Command	Data Length			Output Channel		EDID (256Byte)	End
ASCII	*	2	5	5	A	2	5	8	0	1	…	!
Hex	2Ah	32h	35h	35h	41h	32h	35h	38h	30h	31h	00h…xxh	21h

EDID (256 Bytes) contains EDID information of Output display 1.

3.2.11 Read Input EEPROM EDID

- Read EDID stored on EEPROM of an Input.

- Format of Command Line:

  ➢ *Start (*) + Router ID (3 byte) + Command (C) + Data Length (002) +* Input EEPROM (2 byte) + *End (!)*

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

Example: Read EDID stored on EEPROM of Input 2

Byte	Start	Router ID			Command	Data Length			Input EEPROM		End
ASCII	*	2	5	5	C	0	0	2	0	2	!
Hex	2Ah	32h	35h	35h	43h	30h	30h	32h	30h	32h	21h

Connection DATA

Byte	Start	Router ID			Command	Data Length			Input EEPROM	EDID (256Byte)	End
ASCII	*	2	5	5	C	2	5	8	0	2	…	!
Hex	2Ah	32h	35h	35h	43h	32h	35h	38h	30h	32h	00h…xxh	21h

EDID (256 Bytes) contains EDID information stored on EEPROM 2.

3.2.12 EDID Write

- Read EDID information from connected displays and writes EDID to each EEPROM.

- Format of Command Line:

  ➢ *Start (*) + Router ID (3 byte) + Command (D) +* Data Length (Variable) + EEPROM 1 (2 byte) + EEPROM 2 (2 byte) + … + *End (!)*

    ▪ Variable in Data Length is determined by multiplying 2 bytes to the maximum number of Input channels. With ODM-88, it is 16 bytes, multiplying 2 bytes by 8 inputs.

▪ The 2 bytes in EEPROM # represents the Output port number of target display. For example, 03 in EEPROM 2 represents: load the EDID of Output 3 display into EEPROM 2. The value, 00 in EEPROM # represent: no updating to EEPROM.

Example: Sets, Output 1 display→ Input 1 EEPROM; Output 3 display → Input 2 EEPROM)

Byte	Start	Router ID			Command	Data Length			EEPROM 1		EEPROM 2	
ASCII	*	2	5	5	D	0	1	6	0	1	0	3
Hex	2Ah	32h	35h	35h	44h	30h	31h	36h	30h	31h	30h	33h

EEPROM 3		……..		EEPROM 8		END
0	0	…	…	0	0	!
30h	30h	…	…	30h	30h	21h

- ACK Return Signal:
  - ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

3.2.13 Default EDID Setting

- Restores factory default EDID on EEPROM.
- Command line format:
  - ➢ Start (*) + Router ID (3 byte) + Command (B) + Data Length (000) + End (!)
- ACK Return Signal:
  - ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Byte	Start	Router ID			Command	Data Length			End
ASCII	*	2	5	5	B	0	0	0	!
Hex	2Ah	32h	35h	35h	42h	30h	30h	30h	21h

3.2.14 Baud rate Setting

- Change baud rate through RS-232.
- Command line format:
  - ➢ *Start (*) +* Router ID (3 byte) *+ Command (@) + Data Length (002) +* Baud Rate (variable) *+ End (!)*
  - ➢ The default baud rate is 19,200
  - ➢ Baud rate options:
    - ▪ 01 for 19,200bps
    - ▪ 02 for 38,400bps

- 03 for 57,600bps

- 04 for 115,200bps

- Allows ODM-88 to respond with ACK signal to controller in the following format: 0x06(06h) + Connection DATA + 0x07(07h)

Example: Set the baud rate to 38,400bps.

Byte	Start	ID			Command	Data Length			Baud Rate		End
ASCII	*	2	5	5	@	0	0	2	0	2	!
Hex	2Ah	32h	35h	35h	40h	30h	30h	32h	30h	32h	21h

Connection DATA

Byte	Start	ID			Command	Data Length			Baud Rate		End
ASCII	*	2	5	5	@	0	0	2	0	2	!
Hex	2Ah	32h	35h	35h	40h	30h	30h	32h	30h	32h	21h

3.2.15 Monitoring

- Sets monitoring channel.

- Format of Command Line:

  ➢ *Start (*)* + Router ID (3 byte) + *Command (G)* + *Data Length (002)* + Monitoring Data (2 byte) + *End (!)*

- ACK Return Signal:

  ➢ RX Complete 0x06(06h), TX Complete 0x07(07h)

Ex.> Set Input Channel 2 as the Monitoring channel

Byte	Start	ID			Command	Data Length			Monitoring Data	End
ASCII	*	2	5	5	G	0	0	2	0	2	!
Hex	2Ah	32h	35h	35h	47h	30h	30h	32h	30h	32h	21h

3.3   Proprietary PC Software Installation

3.3.1   Installation of PC Application

1)   Insert ODM-88 software CD ROM into PC. If the CD ROM does not
automatically run, Select Start >Run. Enter X:\ 'ODM-88 Setup.exe,
(where X is the letter of your CD ROM drive)

2)   Installation of ODM-88 screen will be opened. Click on the **Next** button.
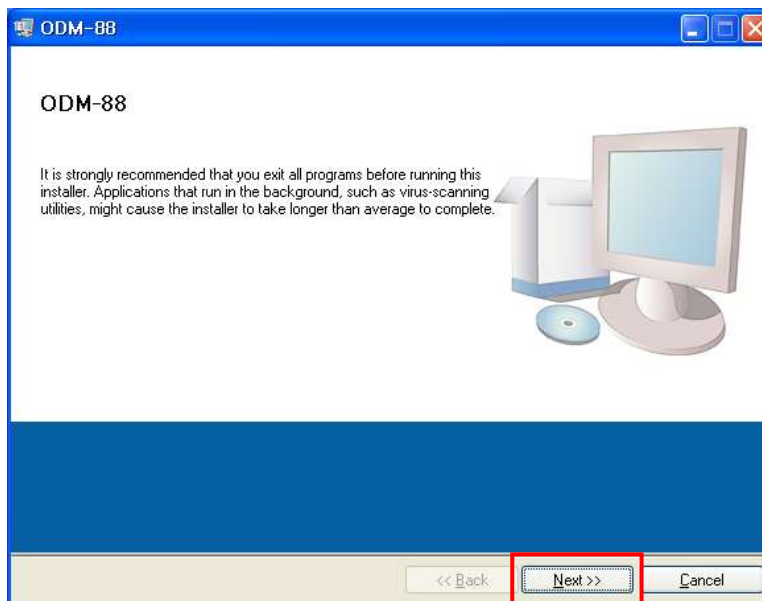
3)   Select the destination directory path and click on the **Next** button.
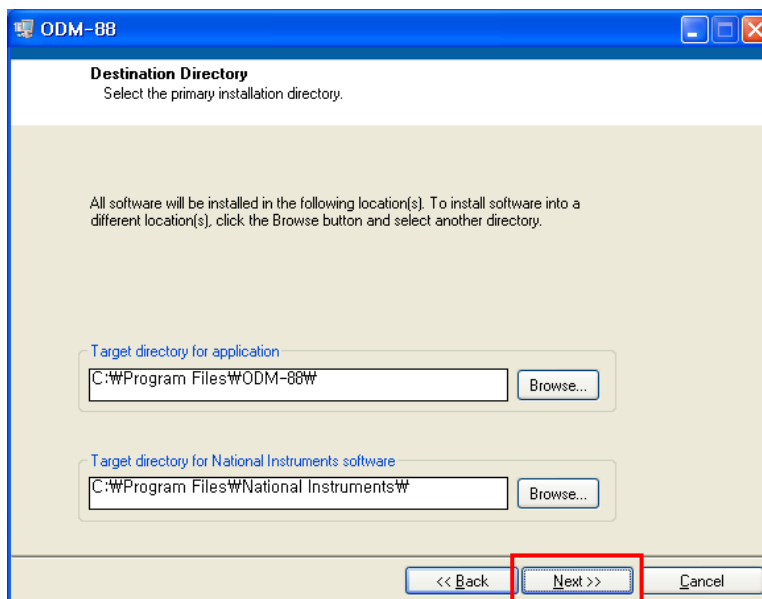
4) Select "I accept the License Agreement(s)" and click on the **Next** button.
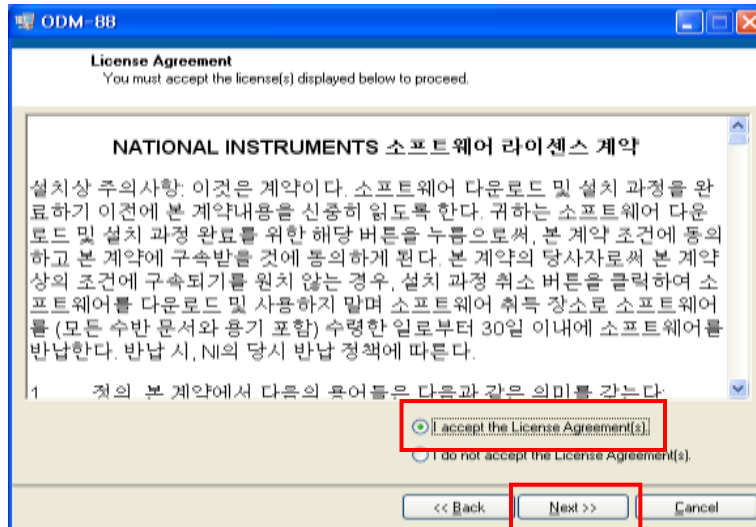
5) Click on the **Next** button.
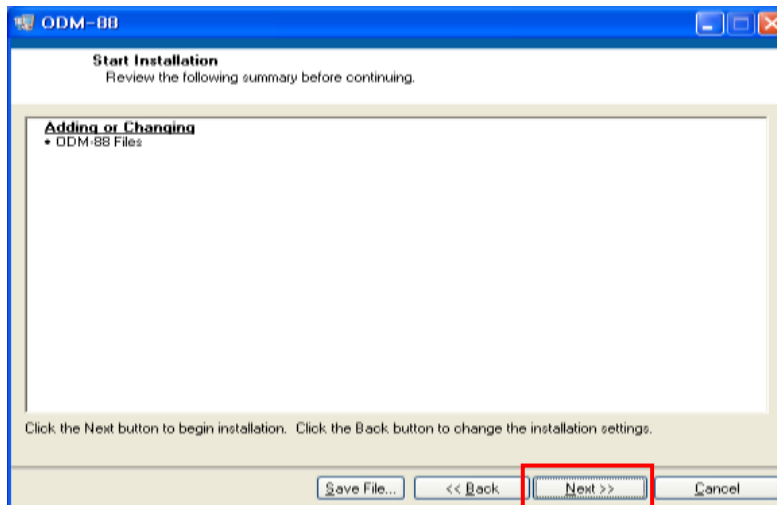
To complete the installation, click on the **Finish** button.
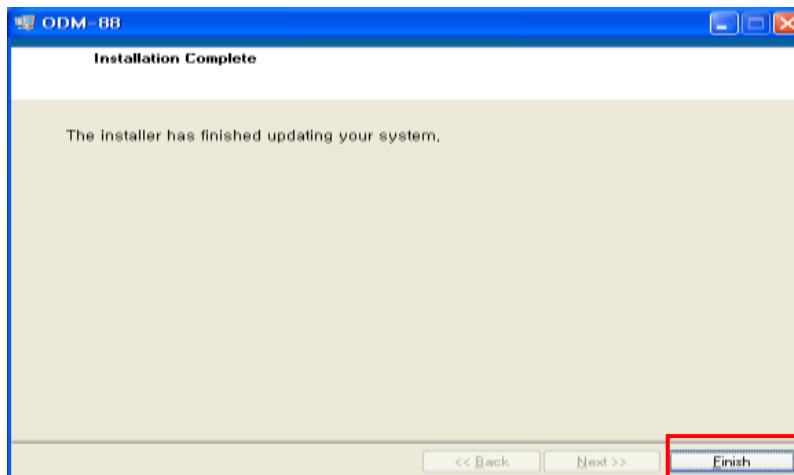
3.4 Proprietary PC Software Operation

3.4.1 PC Operation using RS-232

1) Connect RS-232 cable between ODM-88 and PC.

2) Turn on power switch.

3) Set Baud rate with reference to Function mode manual. (Refer to chap. 2.6.3)
   - Default setting is 19200bps.

4) Execute PC operating software. (Select **Start > Program > ODM-88**)

5) Following will be displayed at first page (Title).

6) Following message will be opened step by step for serial communication, router ID and output channel status.
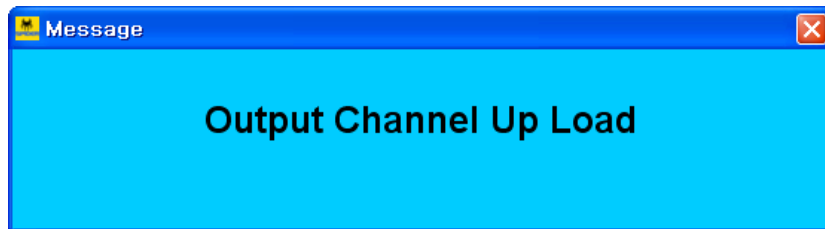
7) Following will be displayed if all connection and setting is in normal.
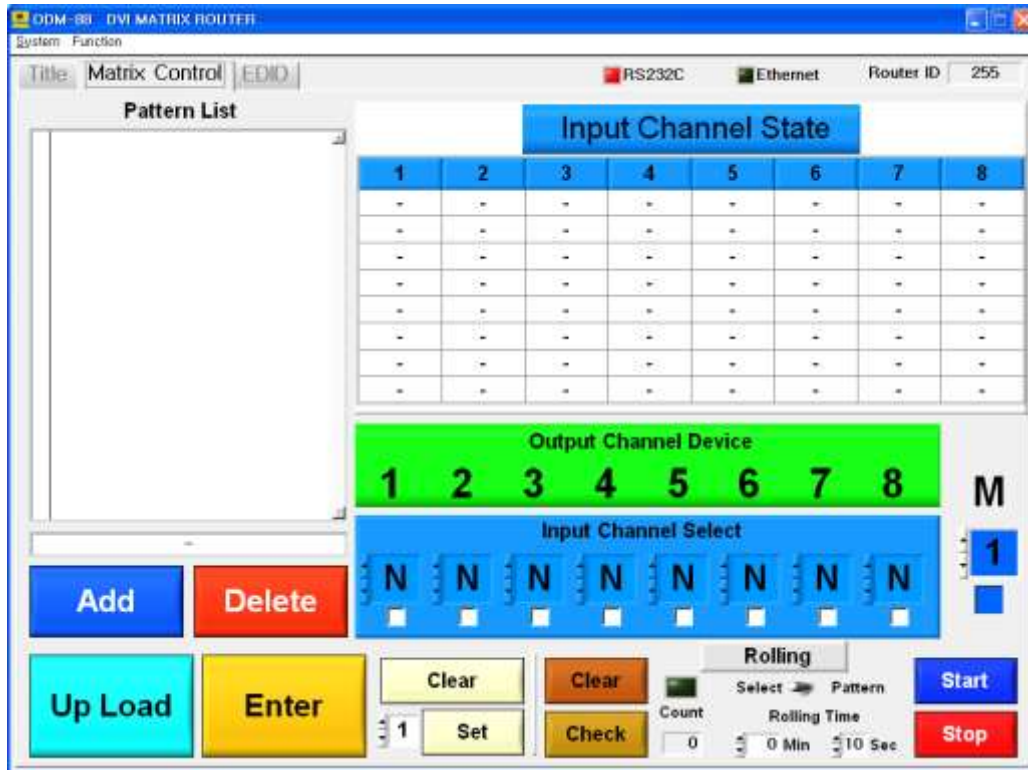
8) Error message will be opened if the connection and setting is not in normal.

ex) Following error message will be opened when cable connection and baud rate setting is not in normal.

ex)   Following error message will be opened when Router ID is not set in normal.
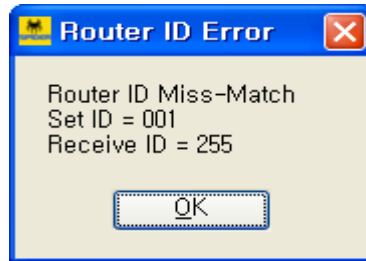
Set ID = PC Software
Receive ID = ODM-88 MATRIX ROUTER
[Note] Set ID and Receive ID should be same.

9)   Setting for Serial Port, Baud Rate and Router ID

Select **System > RS232** at the menu bar.
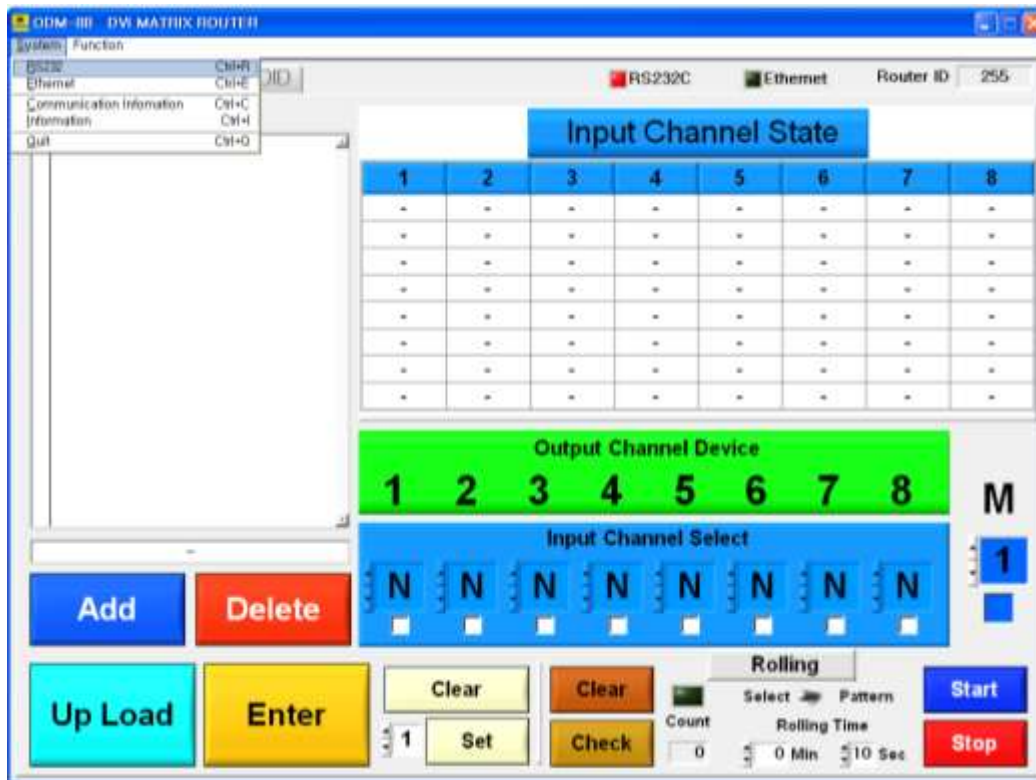
10) Click on the **OK** button after setting desired data.
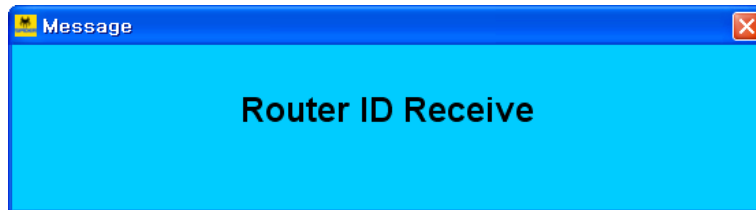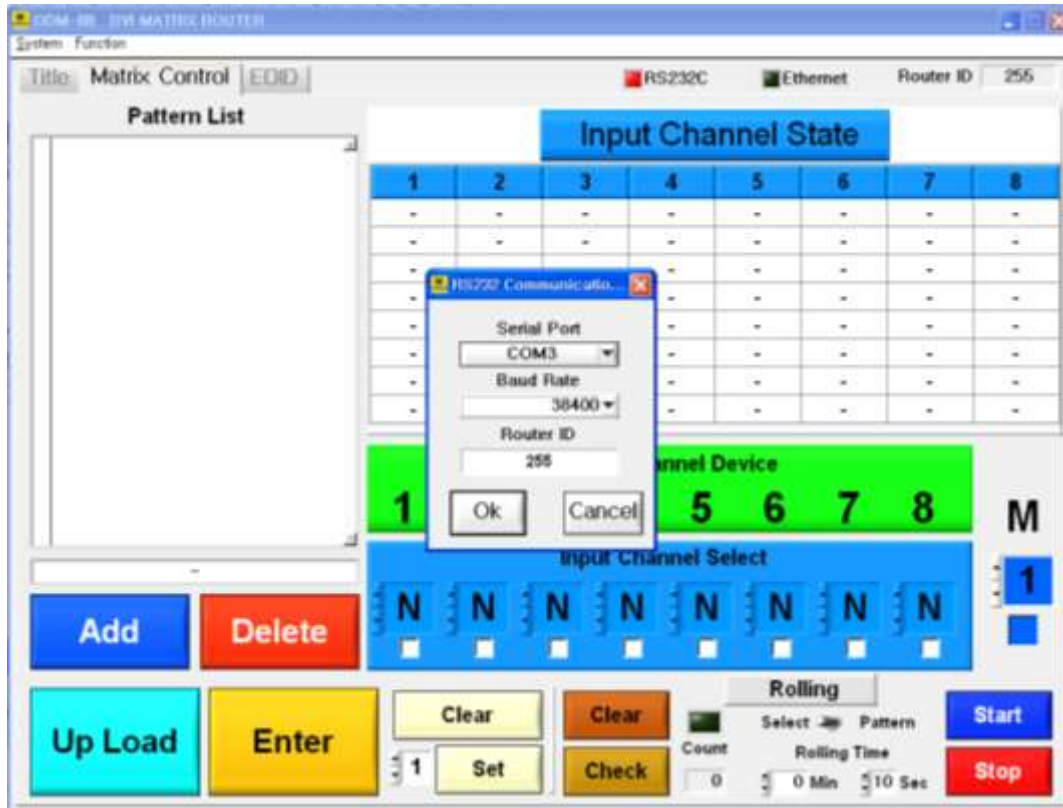
11)   RS232C check box color will be changed to **red color** if all process is in normal.
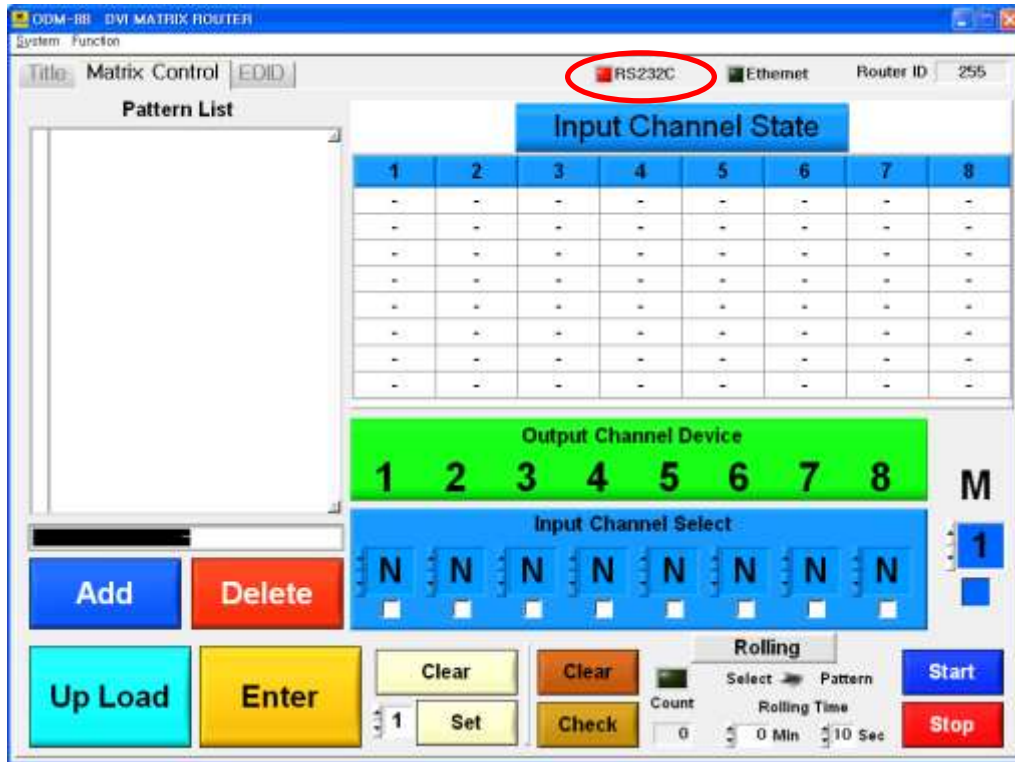
3.4.2 PC Operation using Ethernet

1) Connect Ethernet cable between ODM-88 and PC.
   Caution) Crossover cable should be used for point to point connection and direct cable should be used for LAN connection. Shipping cable as an accessory is crossover cable.
2) Turn on power switch.
3) Set the Gate Way, Subnet Mask, IP Address with reference to Function mode manual. (Refer to chap. 2.6.4 ~ 2.6.6)

   - For point to point direct connection, if the IP address of ODM-88 is 192.168.000.088, the PC IP address should be chosen as 192.168.000.nnn; where nnn ranges 000 to 255 except 088. (Refer to Chap. 2.8.1)

4) Execute PC operating software.(Select **Start > Program > ODM-88**)

5) Following will be displayed at first page (Title).

6) Following message will be opened step by step for Ethernet communication, router ID and output channel status.
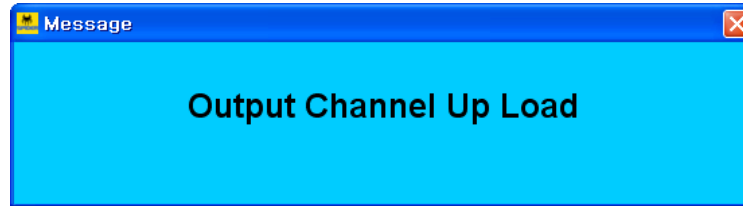
7) Following will be displayed if all connection and setting is in normal.
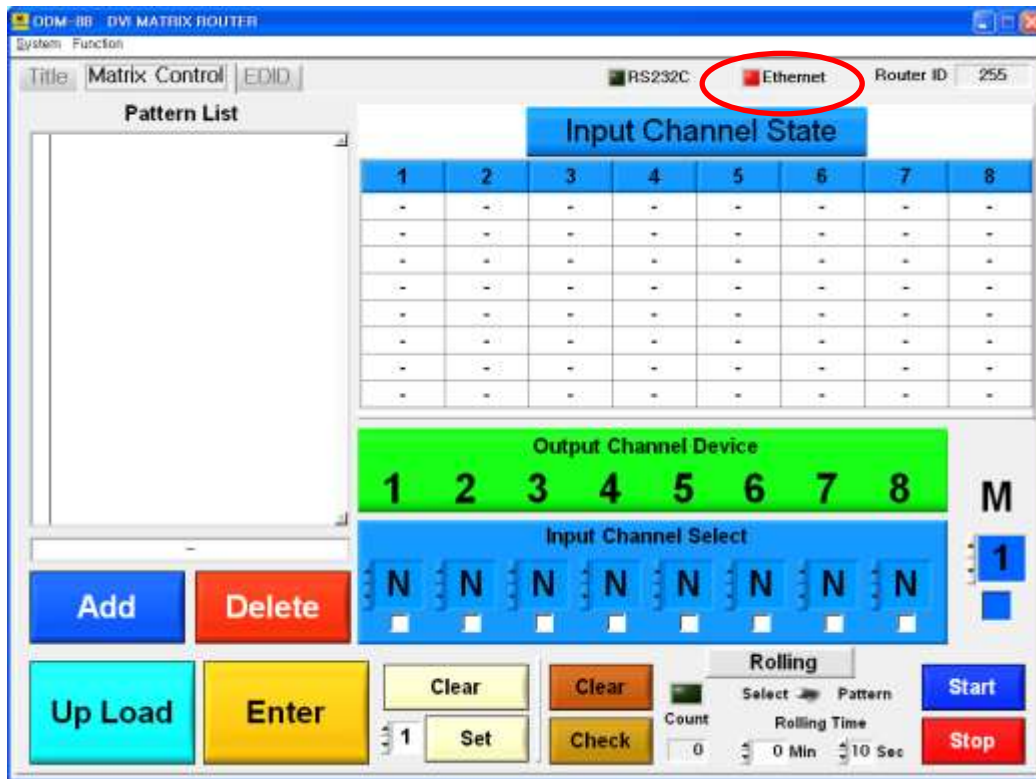
8) Error message will be opened if the connection and setting is not in normal.

ex) Following error message will be opened when Ethernet setting is not in normal.

ex) Following error message will be opened when Router ID is not set in normal.
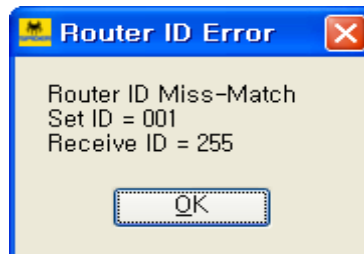
Set ID = PC Software
Receive ID = ODM-88 MATRIX ROUTER
[Note] Set ID and Receive ID should be same.

9) Set the Ethernet communication and Router ID
   [Note] Both IP address of ODM-88 and PC should be same.
   Select **System > Ethernet** at the menu bar
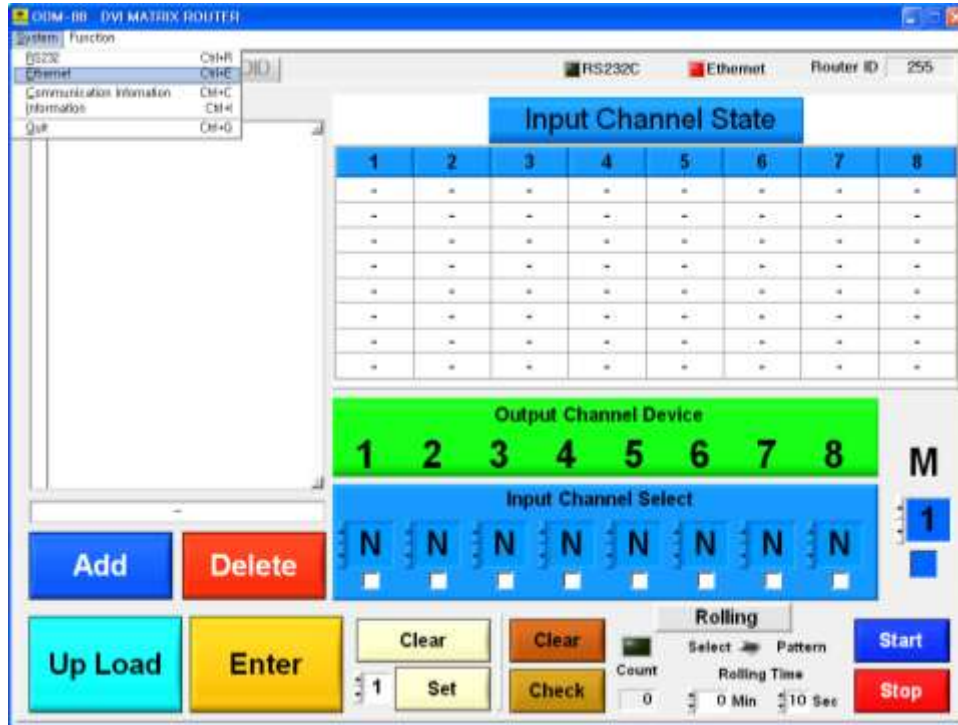
10) Click on the **OK** button after setting desired data.
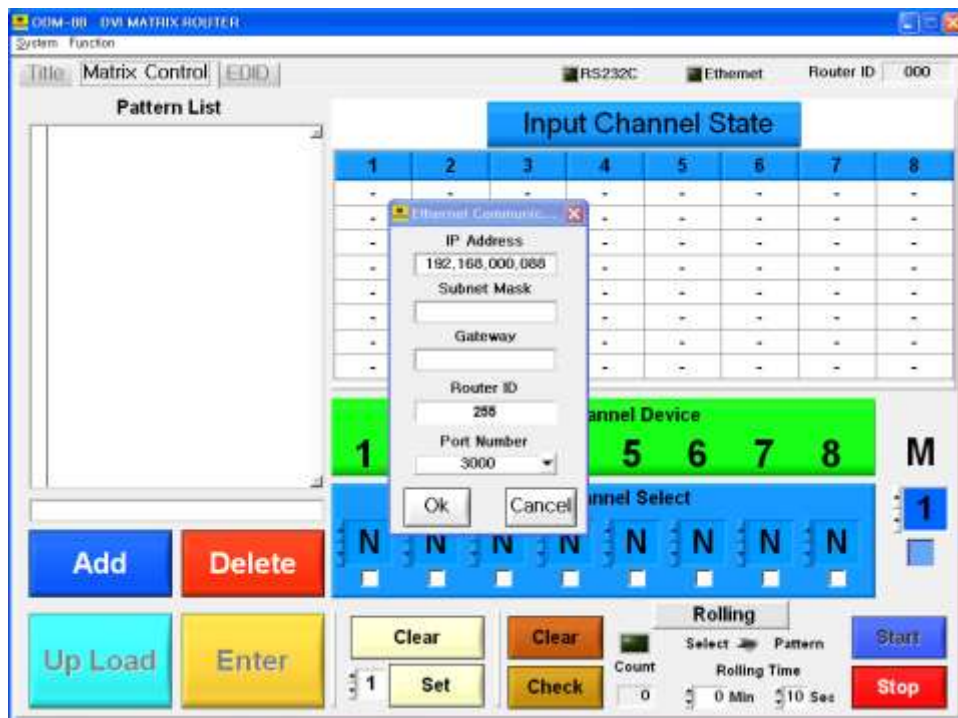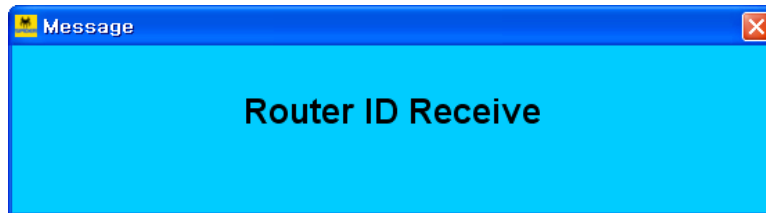
11) Ethernet check box color will be changed to **red color** if all process is in normal.
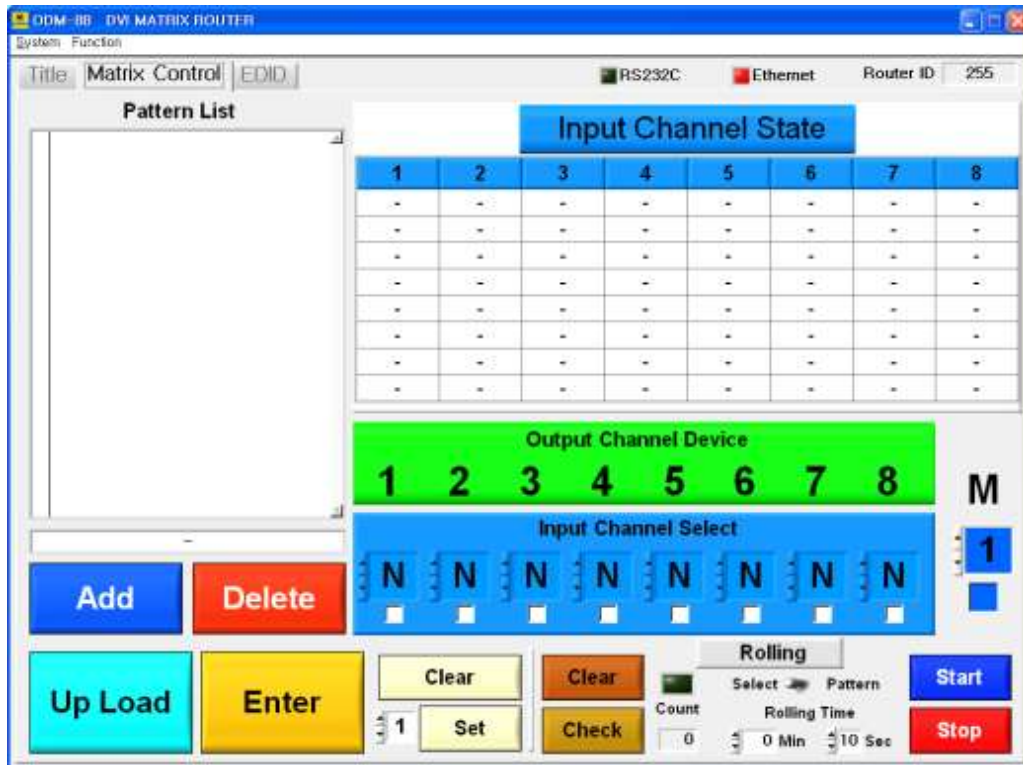
3.4.3   System menu

➢ RS232: Set the Serial Port, Baud Rate, Router ID for

RS232 communication.

➢ Ethernet: Set the IP Address, Subnet Mask, Gateway, Router ID and

Port number for Ethernet communication.

➢ Communication Information: Information for Tx and Rx communication.

➢ Information: Information for PC software version.
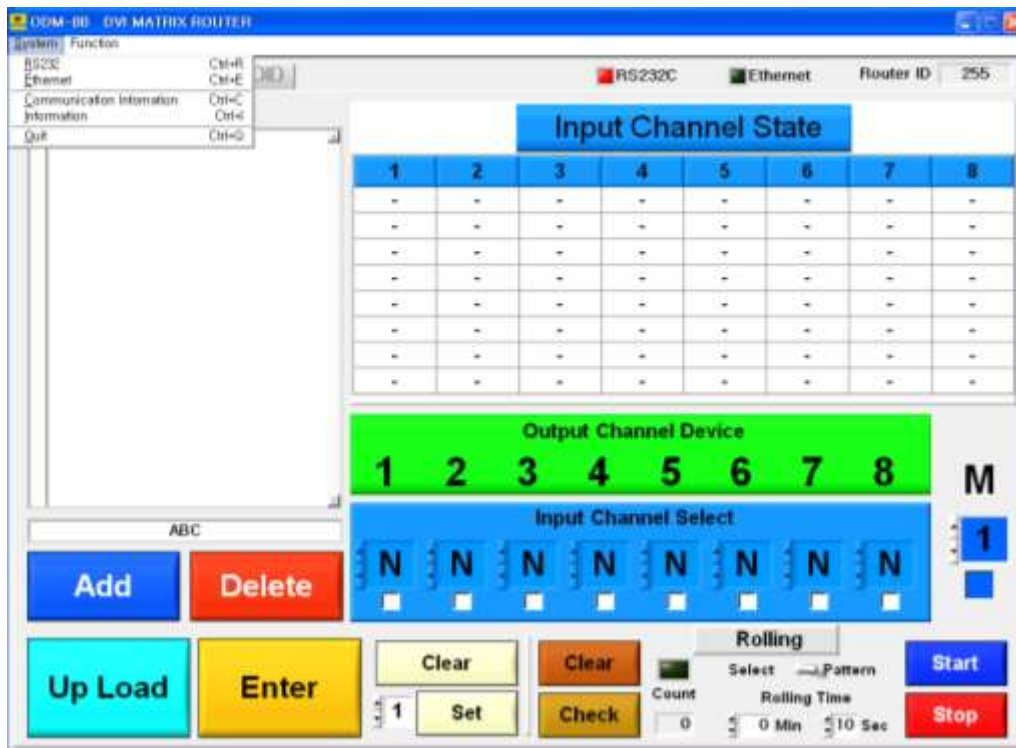
3.4.4 Function menu

➢ Get Router ID: Match PC Software with Router ID after reading Router ID

➢ PreView: Verifies current Input-Output connection status.

➢ Communication Information: Information for Tx and Rx communication.

➢ Baud Rate Change: Change Baud Rate at PC Software
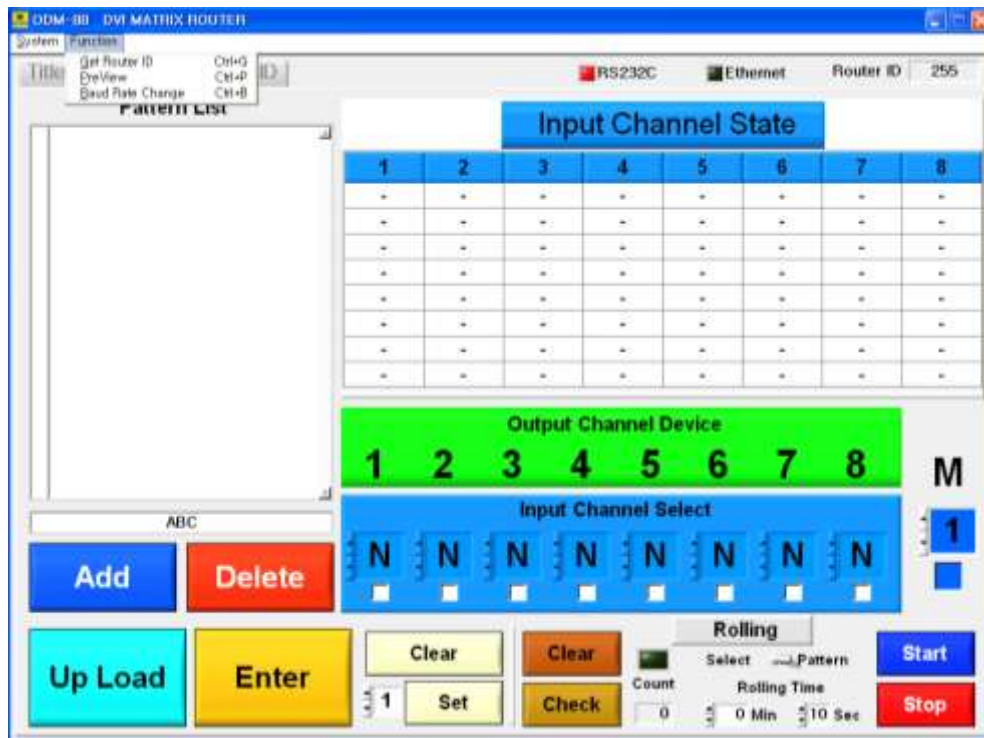
3.4.5 Title Folder – Initial screen of PC Software

3.4.6 Matrix Control Folder

➢ Set the IN/OUT channel and save the edited data.

➢ Set the Monitoring Output.

➢ Set the Rolling function.

➢ Read switching pattern of IN/OUT CH by selecting Upload button.
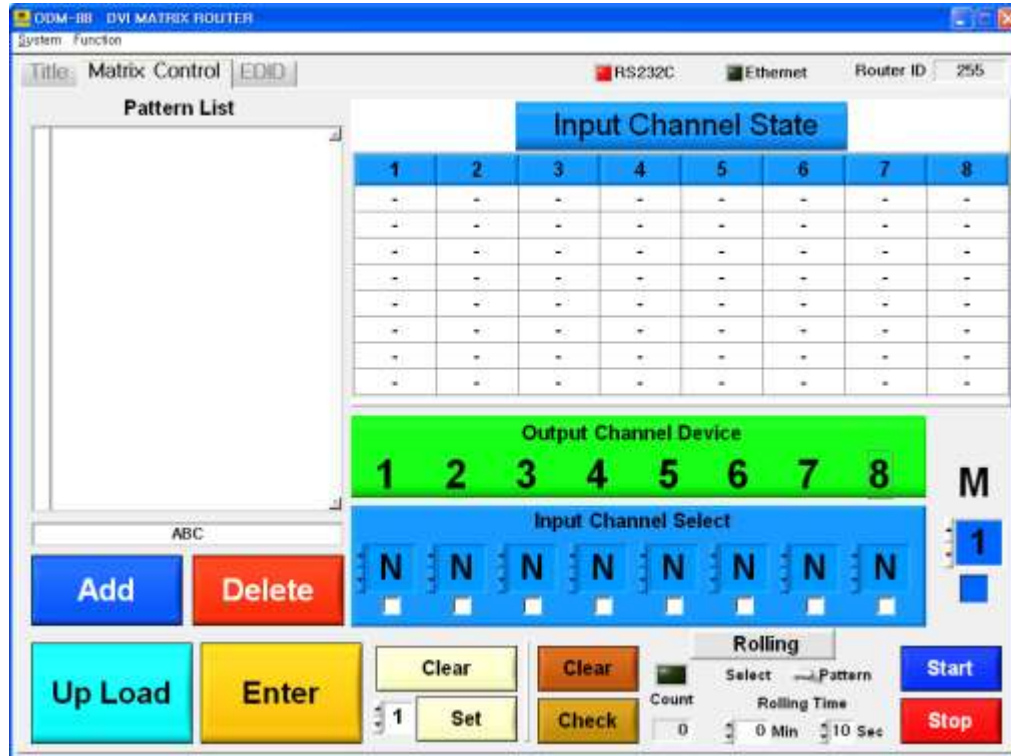
3.4.7 EDID Folder

➢ Store EDID

➢ Read EDID From Output Device

➢ Read EDID From Output Device and store it in Input EEPROM

➢ EDID User defined EDID

➢ Restore defined EDID(in all Input Channel)

➢ One touch store(in all Input Channel)

➢ Store EDID by individual selection

➢ Basic EDID structure: EDID Block 0 [128 bytes]
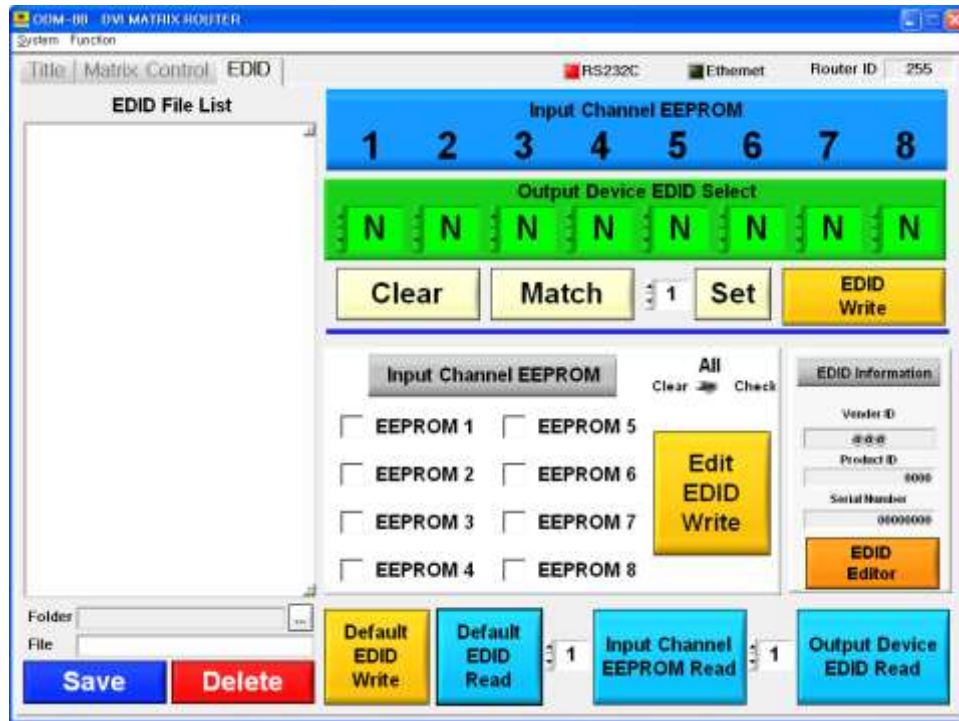
3.5   Matrix Control Operation

3.5.1   Select Input Channel

1) Output Channel Device is not activated. (It's fixed always)
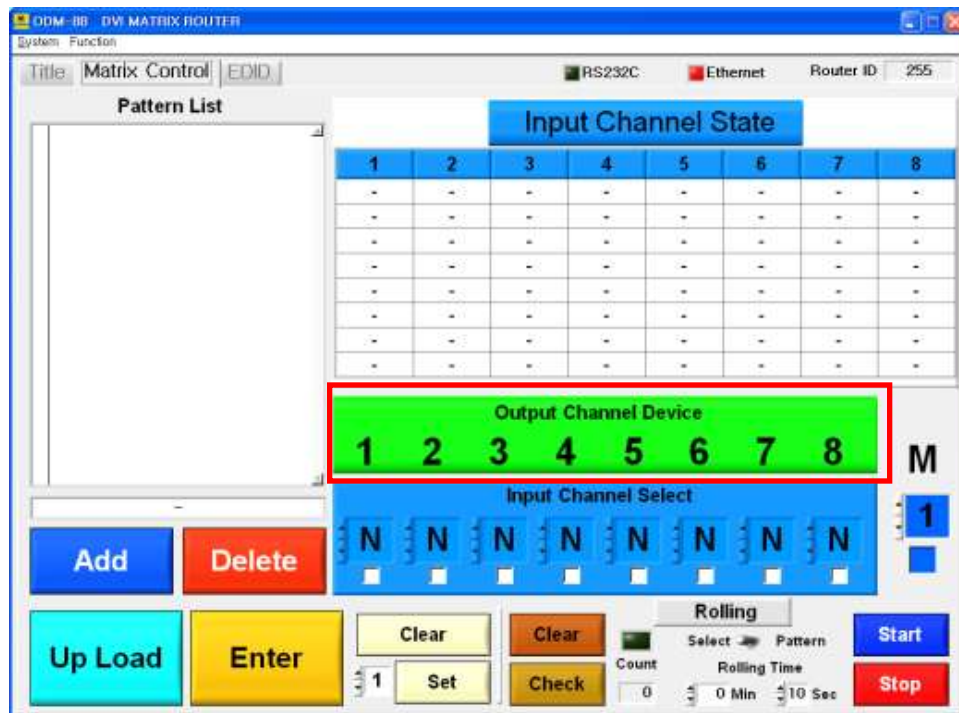
2)   Select desired input channel

(Click on **"N"** which is located at the below of Output Channel Device number)

3) Channel link for Input and Output

ex) Link Input Channel 1 to Output Chanel 1

- Click on the **"N"** which is located at the right under Output Channel Device No. 1 > select **1** > click on the **Enter** button > **OK** message
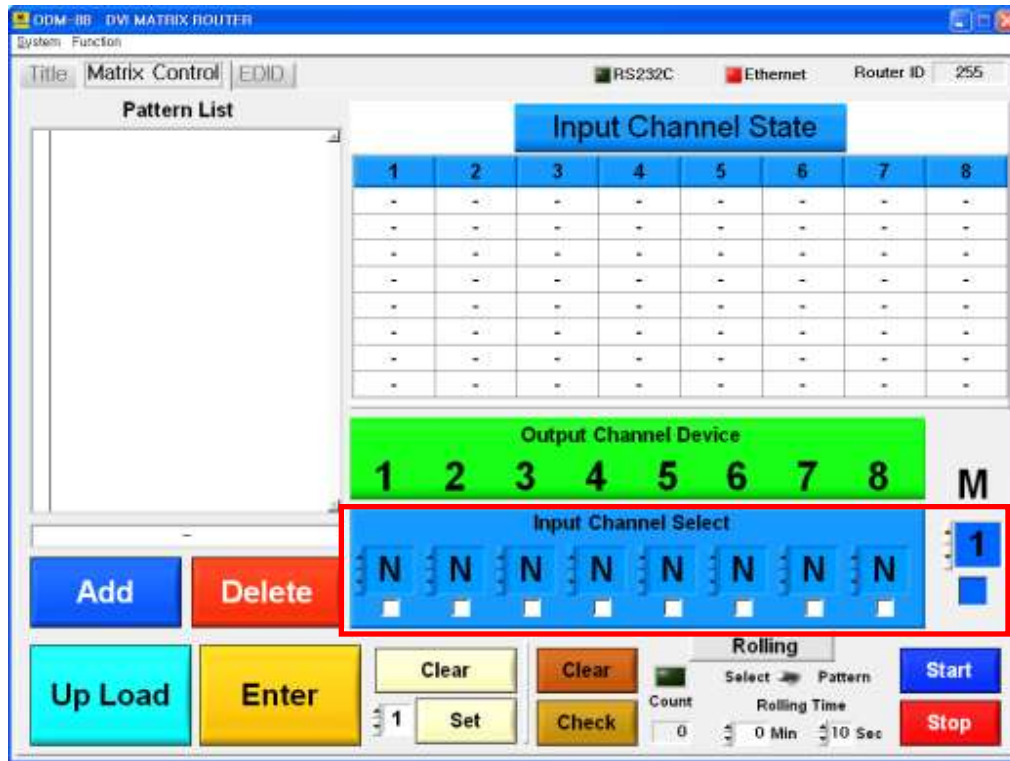
- Output CH 1 will be marked in **green color** in the line of Input CH 1.
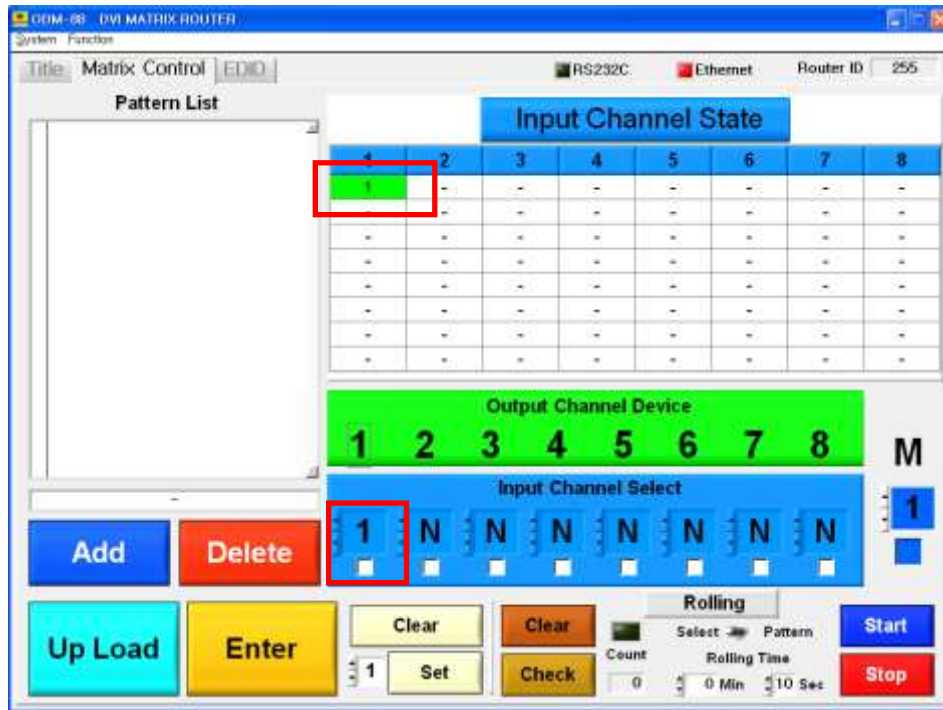
3.5.2 Easy link for Input CH to all Output CH

1) Select Input CH number and Enter button.

ex) Link Input CH 2 to all Output CH:

Select No. **2** > **Set** button > **Enter** button
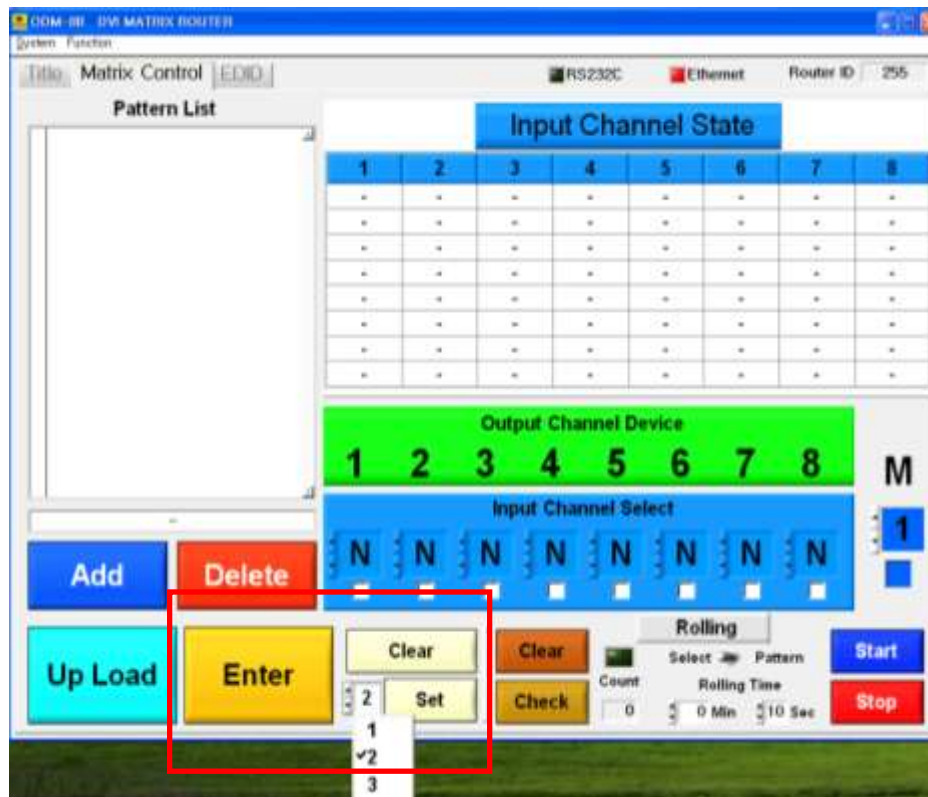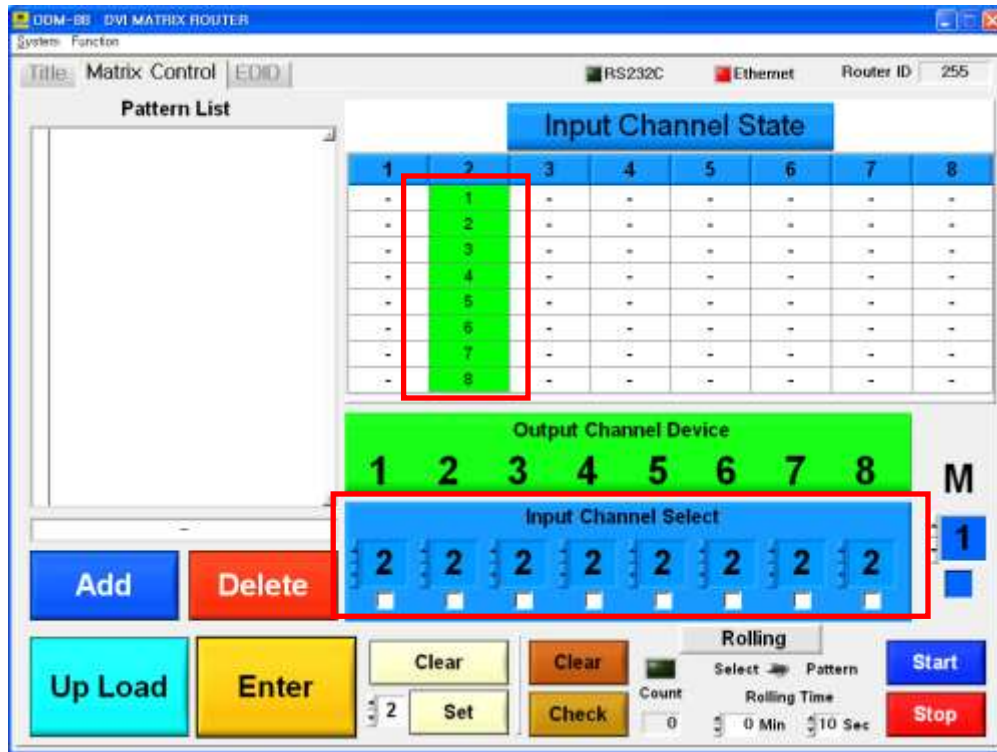
If user wants to clear the link setting, select Clear and Enter button.

Clear button > **Enter** button

3.5.3 Select Monitoring

- Output #1 will be disconnected automatically when monitoring port is connected and working.
  - ➤ ex) Monitoring for Input CH 4: Select No. **4** > select **Check Box**
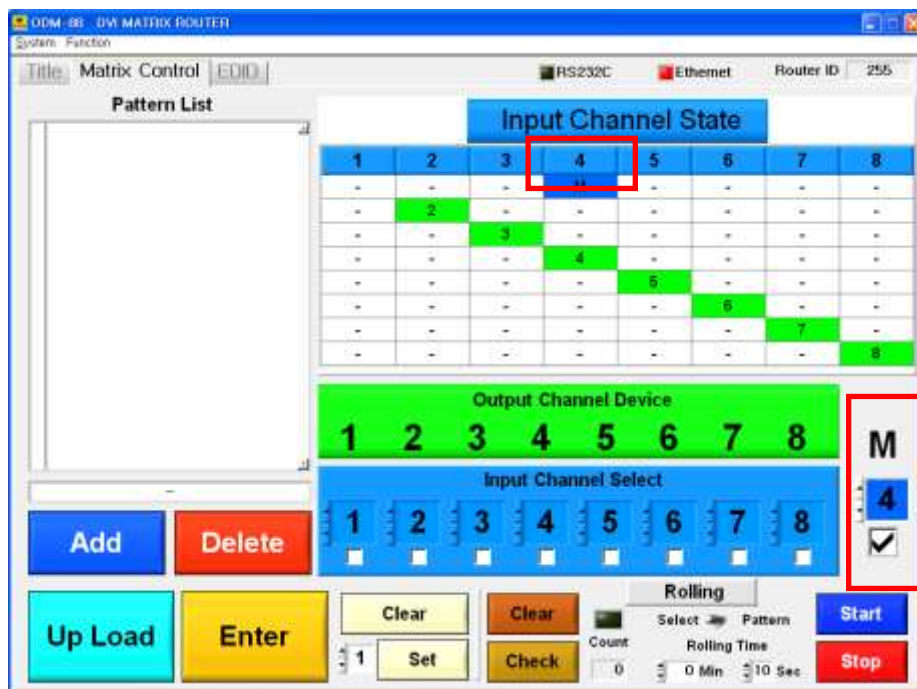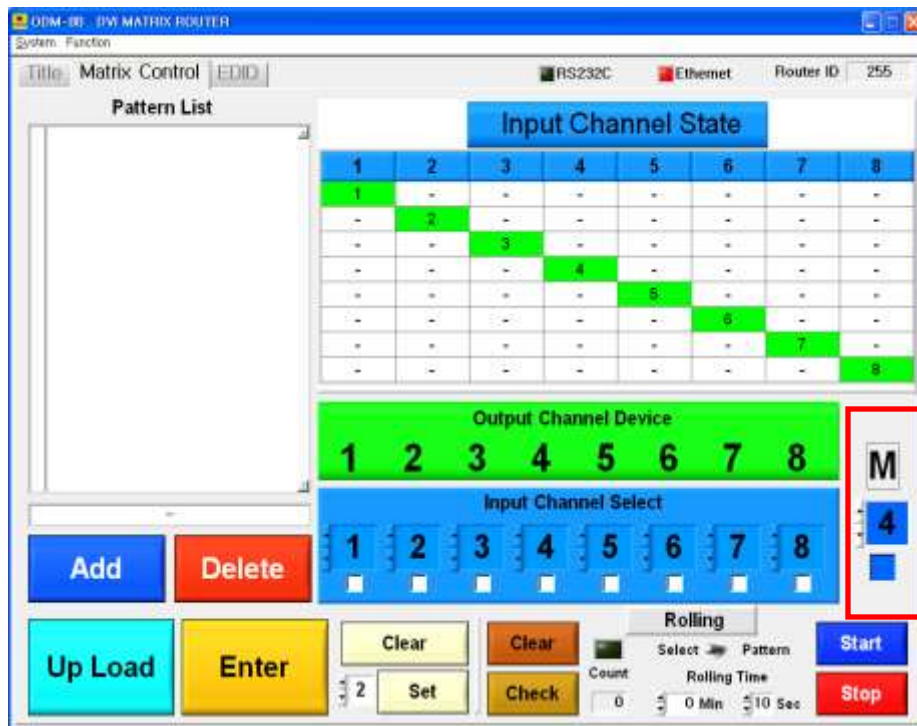
3.5.4 Save Switching Pattern

- Select link for Input CH and Output CH > Create Pattern Name >

  Select Add button.

  ➢ ex) Select link for Input CH and Output CH as 1:1 > Write **ABC** as Pattern
    Name > Select **Add** button
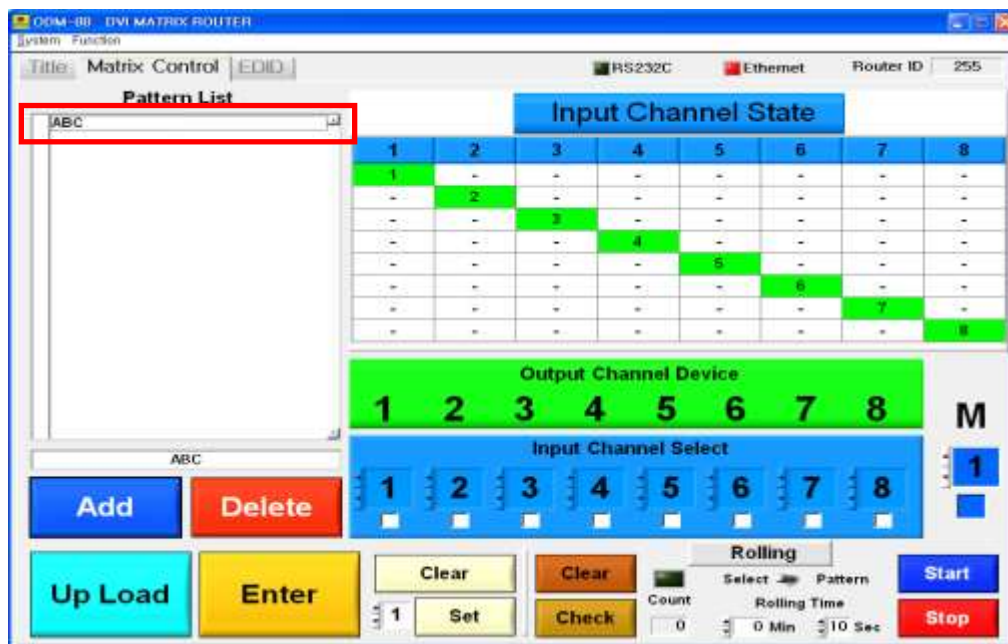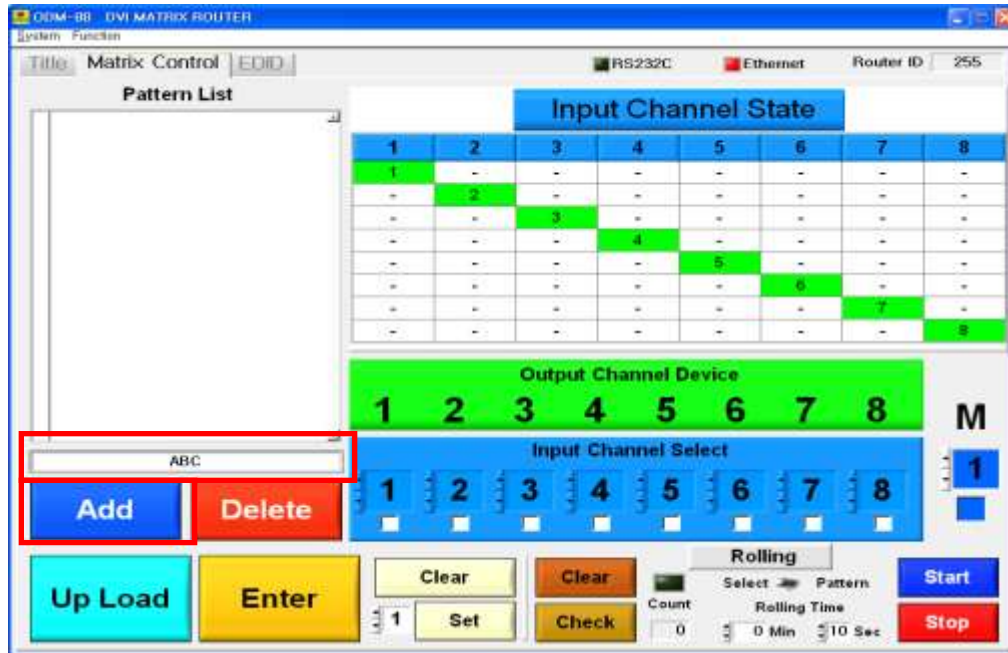
➢ ex) Select link for Input CH and Output CH in reverse order > Create **Pattern Name(DEF)** > Select **Add** button.
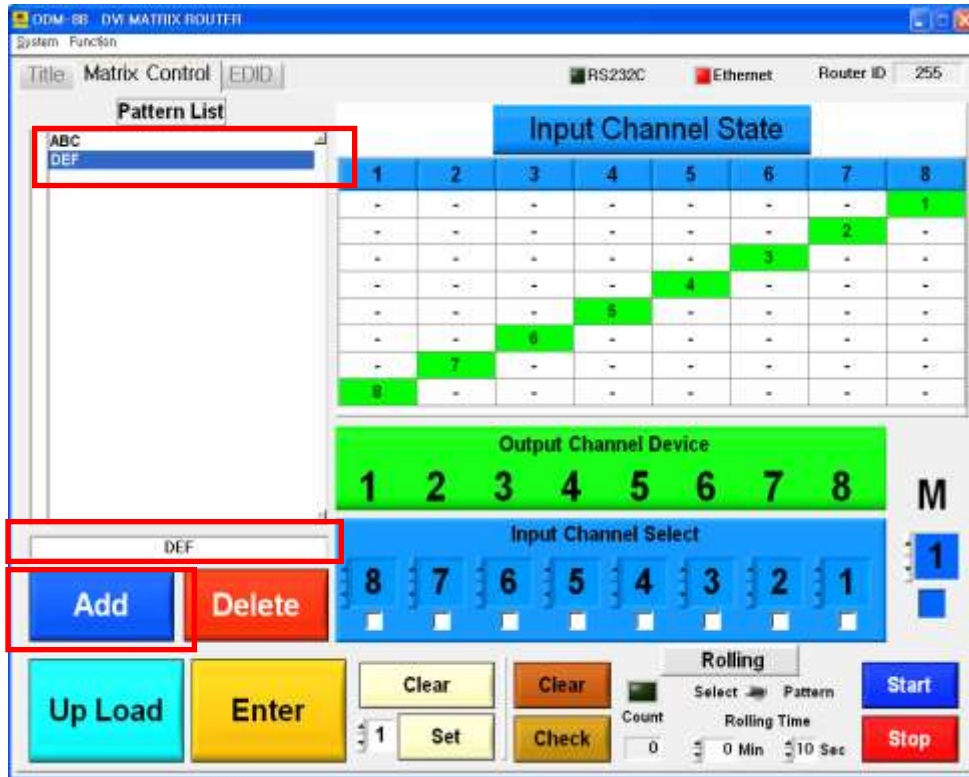
➢ In order to delete Pattern Name in the list, the process is:

Select **check box** for the Pattern Name > Click on the **Delete** button.

➢ ex) Delete DEF Pattern Name in the list
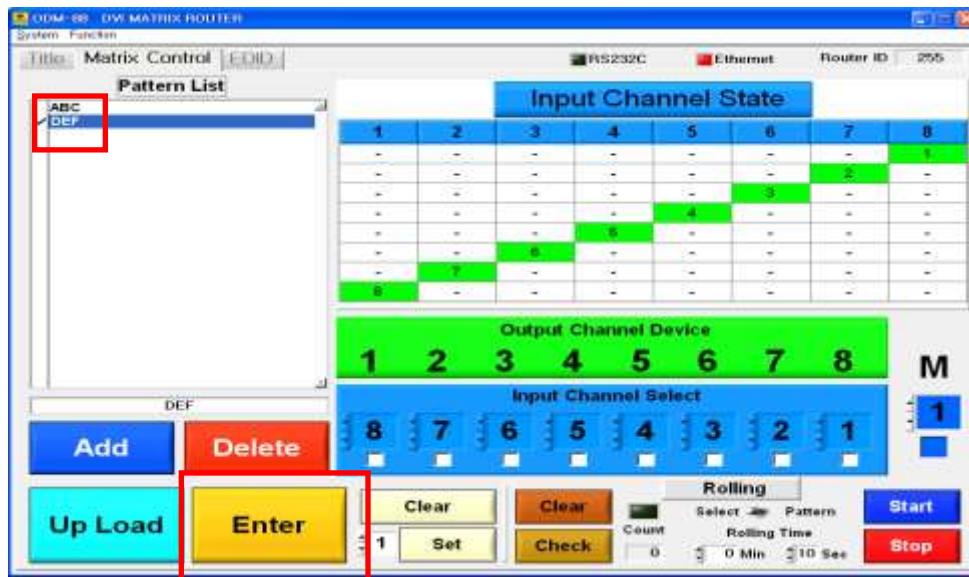
3.5.5   Rolling Function

- Allows users to rotate Input sources.

- Used to verify all Input-Output connections.

  ➢ If Output channel was not connected to any Input channel, Check Box would not be checked.

  ➢ Must have at least 2 Output Channels.
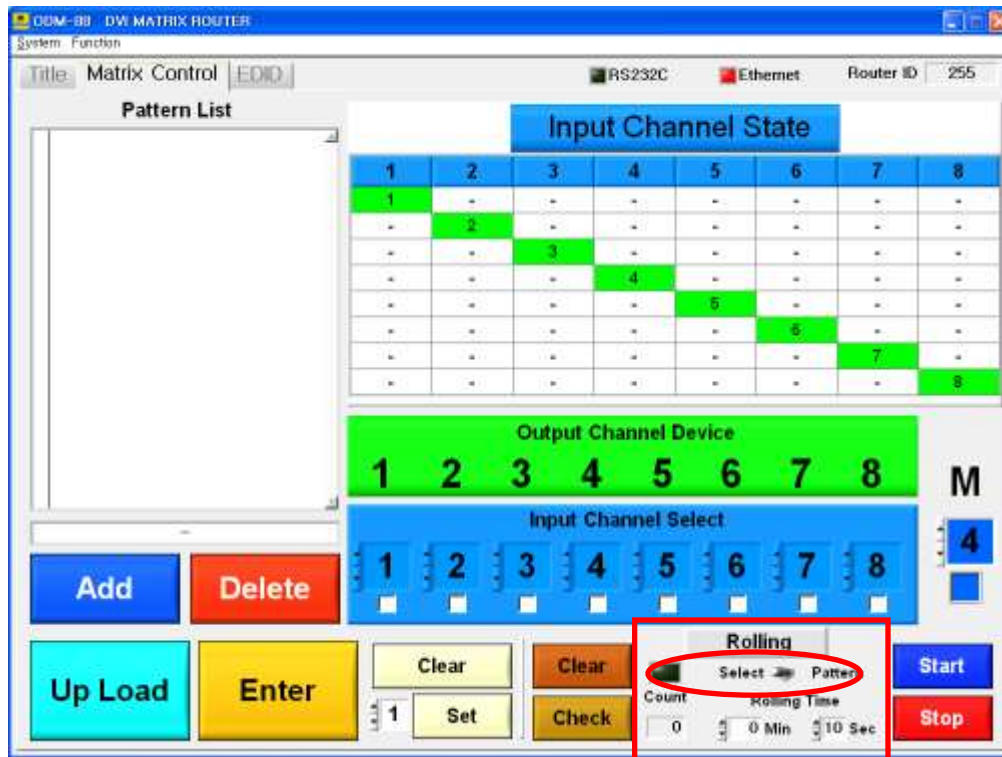
➢ ODM-88 has two types of rolling function (Select and Pattern).

➢ Select mode process is:

  Click on the **Select** > select **Input CH No.** > set **Rolling Time** > select **Start** button

➢ Pattern mode process is:

  Click on the **Pattern** > Select **Pattern in the list** > **Start** button.

➢ The number of rolling count will be indicated at **Count**.

3.5.6 Select Rolling Mode

Click on the **Select** > select **Input CH No.** > set **Rolling Time** > select **Start** button.

- For example:
  - ➢ When user selects Input CH 1, 2, 3 to be rolled, the sequence will be as below.
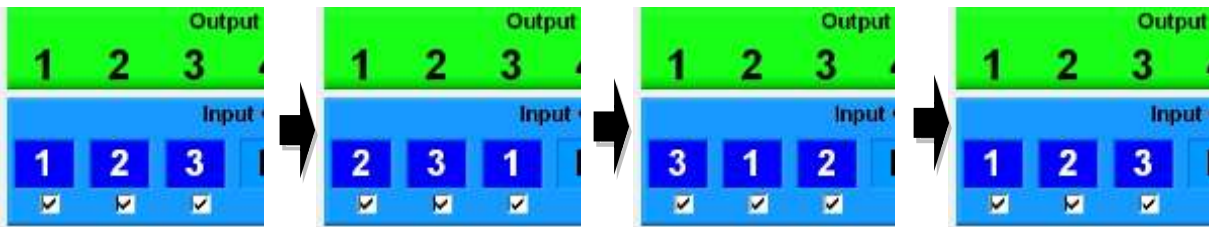
3.5.7 Pattern Rolling Mode

- Click on the **Pattern** > Select **Pattern in the list** > **Start** button.
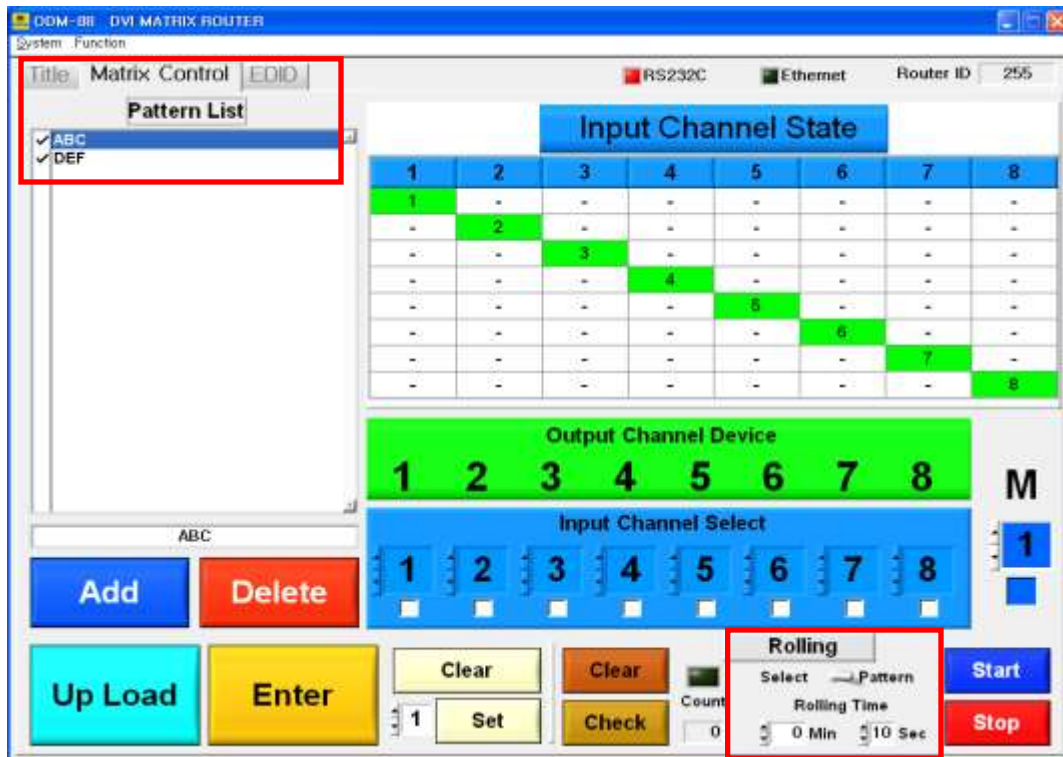
3.6 EDID Setting

3.6.1 Features:

- Store EDID

- Read EDID from Output device

- Read EDID from Output device and store it in Input EEPROM

- EDIT user defined EDID

- Restore default EDID (in all Input channels)

- One touch store (in all Input channels)

- Store EDID by individual selection

- Basic EDID structure: EDID Block 0 [128 bytes]

3.6.2 Importance of EDID - Example

- Four (4) sources with four (4) different types of displays configured as below: -
  Source Input 1 is distributed to Output 1 and 4.

1	Source 1	Display 1
2	Source 2	Display 2
3	Source 3	Display 3
4	Source 4	Display 4
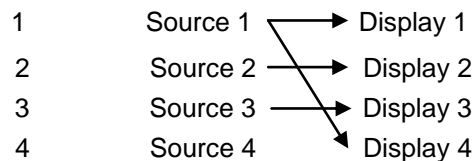
- Resolution of Display 1 is 1080p and Display 4 is 1080i

- Input 1 EDID must be set a 1080i for all Output 1 and 4 Displays to show 1080i image.

- If Input 1 EDID is set to 1080p, Display 4 cannot display the image

3.6.3 Setting EDID

- Select 'EDID Fold Button', and go to EDID setting.

- This section consist of two functions:

  ➢ Write EDID Data from Output Device

  ➢ EDID EDIT & Write EDID Data from PC

3.6.4   Write EDID data of Output Device to Input CH EEPROM

1) Select EDID, and go to EDID setting.

2) Select Output Device EDID Select No.

3) Verify all Input EEPROM # and selected Output Device #.

4) Select EDID Write button to save the EDID data.

[Note]

- **Match**: Same number will be assigned for EEPROM # and Output # (1 : 1 matching).

- **Set**: Select all the number of Output Device EDID Select with desired number.
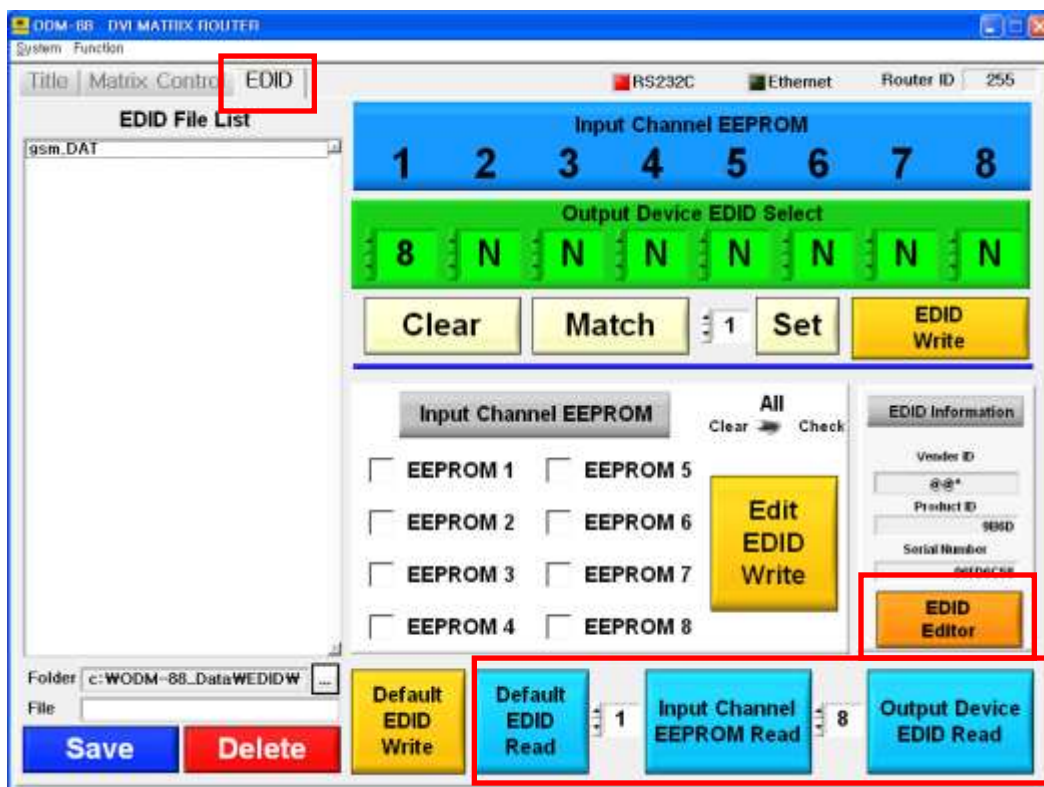
- **Clear**: Clear the selected number of Output Device EDID Select.
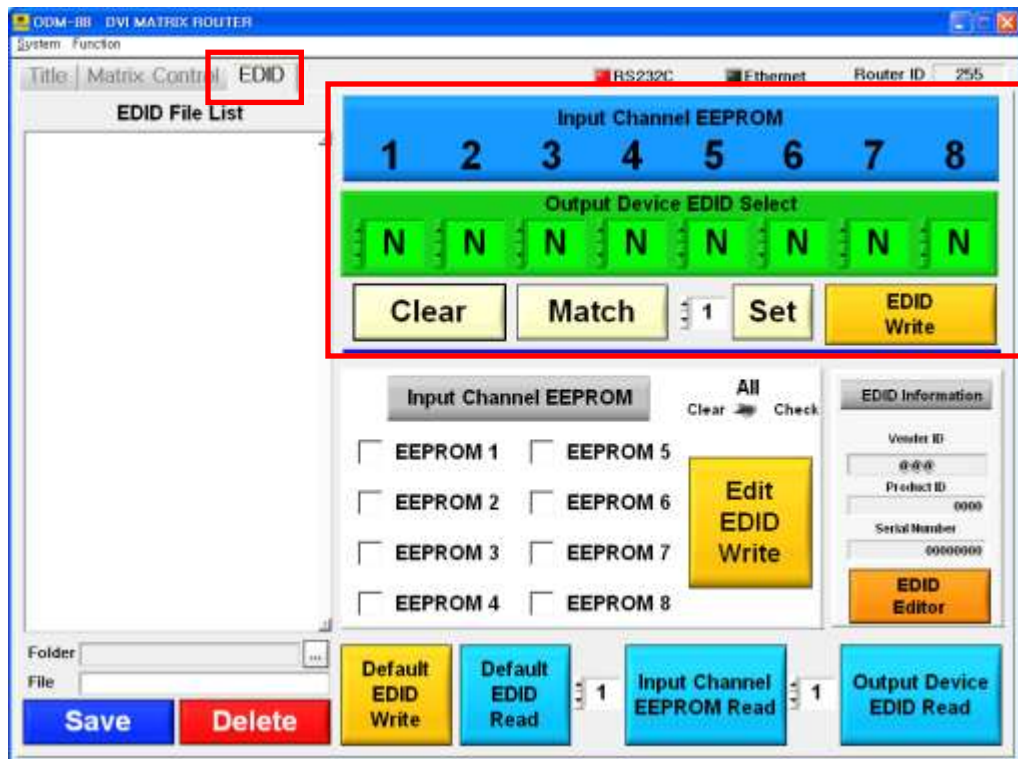
3.6.5   Read EDID

1) Select EDID, and go to EDID setting.

2) Select the number of Input Channel EEPROM Read.

3) Select the number of Output Device EDID Read.

4) Default EDID Data can be read with Default EDID Read button.

If user click on the EDID Editor button, the read EDID Data at the above 2) 3) 4) process can be checked.

3.6.6 Write the read EDID Data

- User can write default EDID Data as following process.

  Click on the **Default EDID Read** button > select **Input Channel EEPROM No.** > click on the **Edit EDID Write** button.

- User can write desired Input Channel EDID Data as following process.

  Select desired no. at the selection box of **Input channel EEPROM Read** > select **Input Channel EEPROM No.** > click on the **Edit EDID Write** button.

- User can write desired Output Device Channel EDID Data as following process.

  Select desired no. at the selection box of **Output Device EDID Read** > select **Input Channel EEPROM No.** > click on the **Edit EDID Write** button.
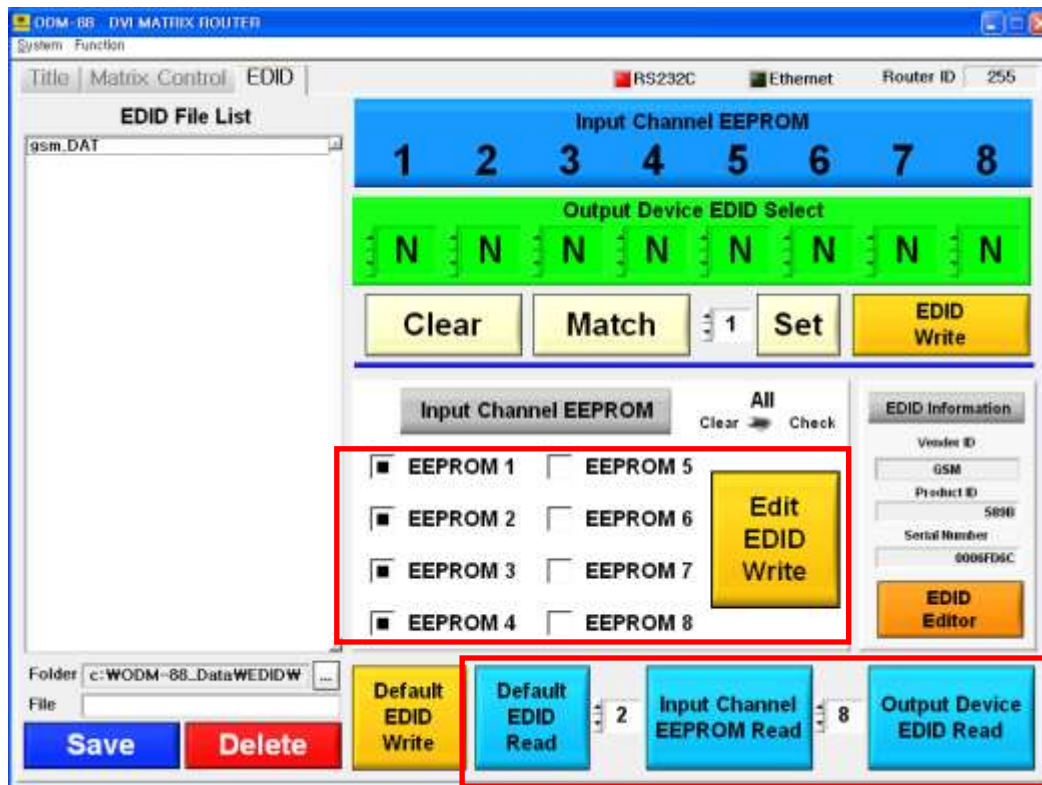
3.6.7   Save the edited EDID Data and open the saved file

- The read EDID Data could be saved as a file.

- The saved EDID File's directory is Folder c:\ODM-88_Data\EDID.

- File name will be listed with following process.

  Input file name at the **File** line > click on the **Save** button > the saved file will be listed.

- If user wants to delete the save file, the process is as following.

  Select **desired file** which needs to be deleted > click on the **Delete** button > the file will be disappeared in the list.

- User can write the saved EDID Data to Input Channel EEPROM as following process.

  Select **desired file** in the list > select **Input Channel EEPROM No.** > click on the **Edit EDID Write** button.
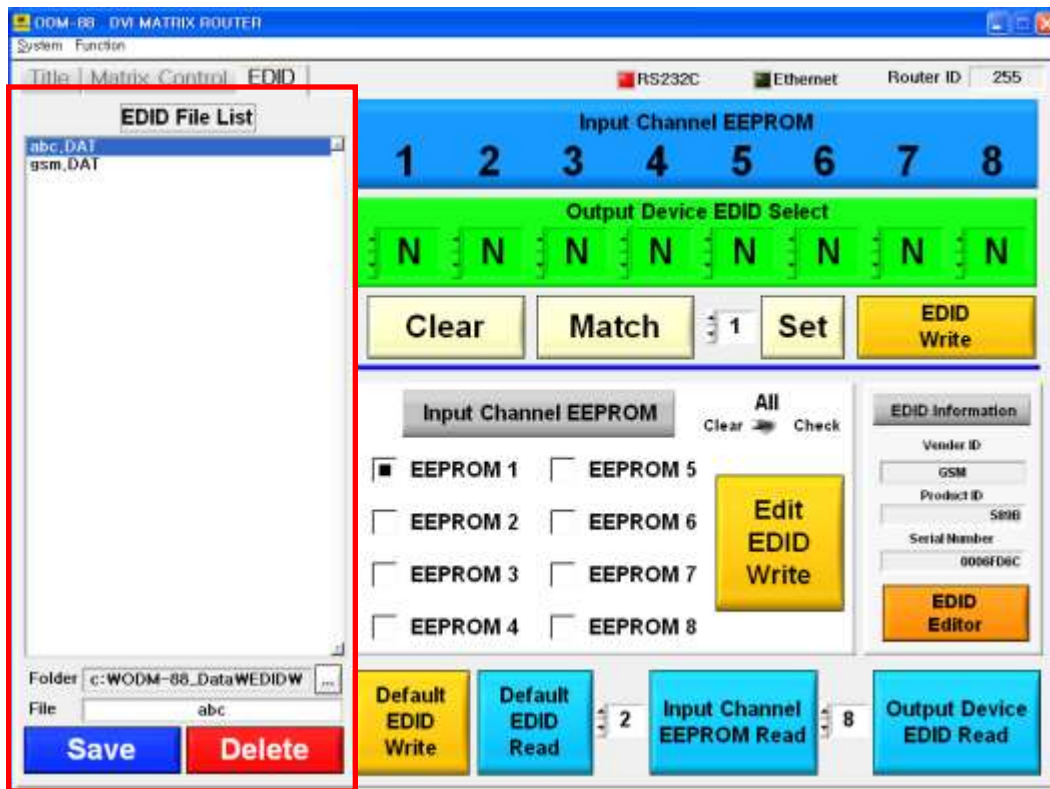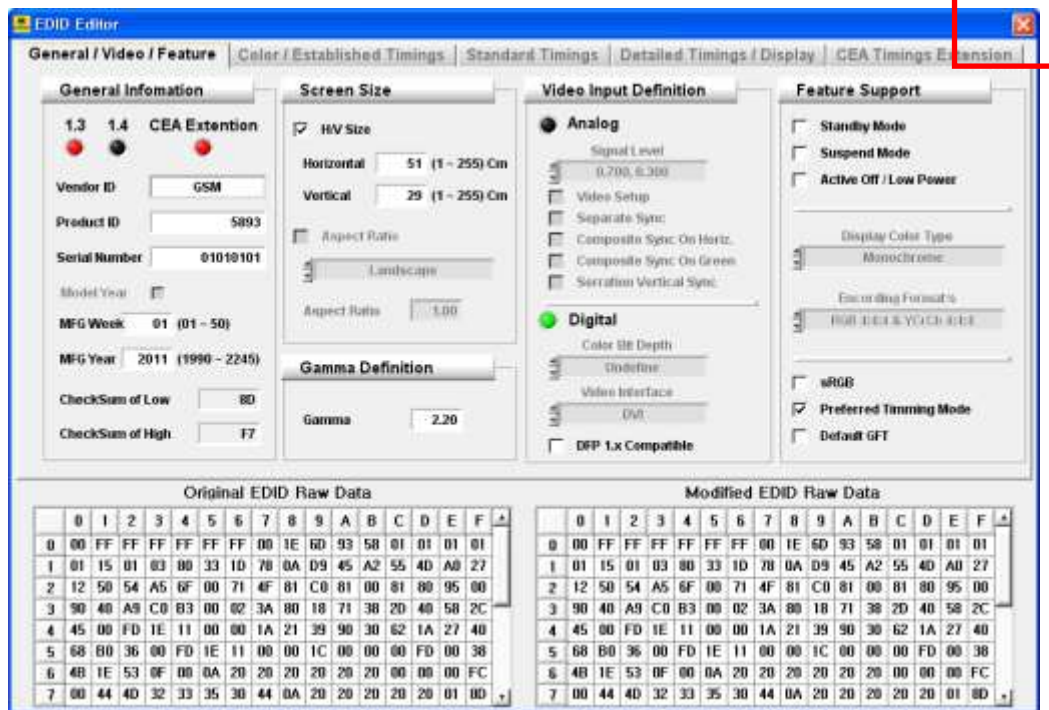
3.6.8 EDID EDITOR

1) Confirm and edit for Input Channel EEPROM, Output Device EDID and Default EDID.

The read EDID Data will be displayed when clicking on the EDID Editor button.

The edited EDID Data could be saved as a file and saved it to Input Channel EEPROM.

It's not recommended to edit the EDID Data with no purpose.

USER MANUAL

DVI MATRIX ROUTER : ODM-88

OPTICIS
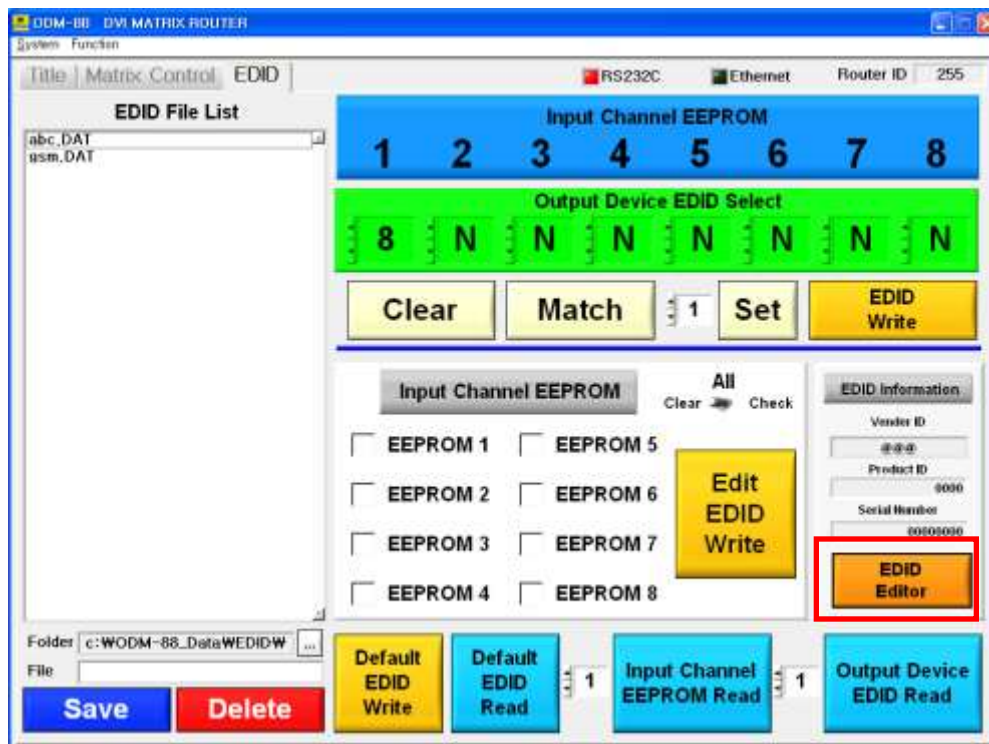
➢ Confirm the read EDID Data as a below display.

➢ It will be asked whether save the edited data or not when trying to close the window.

➢ It can be editable, but it's not recommended with any purpose.

4. Troubleshooting

Problem	Symptom	Remedy
Power	No Power LED	Check the connection of power cord to the ODM-88 and AC power outlet and that make sure that power switch is in the ON.
Output	No Output present	Check the Input Output DVI cables are firmly connected to each port of ODM-88 and double check the Input Output connection configuration you want.
		The display is not capable of handling graphic resolution. Check the compatibility of EDID in the EEPROM and attached displays. When a single Input is routed to multiple outputs, lower resolution EDID should be selected. EX> Input 1 → Output 1 (UXGA) & Output 2(SXGA) If EEPROM 1 store the display 1 EDID (UXGA), the display 2 (SXGA) will not work due to resolution limit.
		The source has stopped sending a graphic signal. Check that Input source status by connecting it to available monitor without the ODM-88.

5. Features

This unit is designated to make cross-switch between the 8 DVI inputs and the 8 DVI outputs in a way of any of 8 inputs to one or multiple outputs. Chassis is hardened enough to be applicable in harsh environments like staging, control room and military.

1) Enables to connect the maximum 8 independent displays.
2) Complies with DVI-HDCP standard.
3) Each Output port can be used as a Signal-Distributor.
4) Supports Windows PLUG & PLAY function.
5) Offers various control interfaces like Front-Key Input, RS-232 and Ethernet communication.
6) Fulfills real-time display of running status on 20x4 LCD and with illuminated LED type keys.
7) Be rack-mountable with solid 19 inch standard RACK TYPE CASE.
8) Supports real-time Hot Plug Detection and program each EDID to connected DVI sources as per user's specification. (EDID programming option)
9) Offers various options to set EDID to enhance compatibility.

6. Specification

1) Input & Output Video Signals Type: TMDS (Transient Minimized Differential Signal)
2) DVI Signal Bandwidth: Maximum 1.65Gbps
3) Resolution: VGA (640x480) ~ WUXGA (1920x1200), 480~1080i and 1080p
4) RS-232 baud rates: 19,200bps ~115,200bps
5) LAN Port: 10/100 bases
6) AC/DC Power Supply: 110~240V/1.5A, 50~60Hz, DC12V/5A
7) Size: 440 x 165 x 75mm (W x D x H)
8) Weight: 2.5Kg (Router only)

7. Firmware downloading

Router KEY Control

- MegaBoot is a firmware update software program for ODM-88

- Follow the instructions below to install the MegaBoot software into your PC.

Insert the software CD into your PC and copy the MegaBoot.exe file to your desktop.
Then there will be created below Icon on your desktop.

MegaBoot.exe

Connect USB Cable (A Plug –B Plug) over the Router.
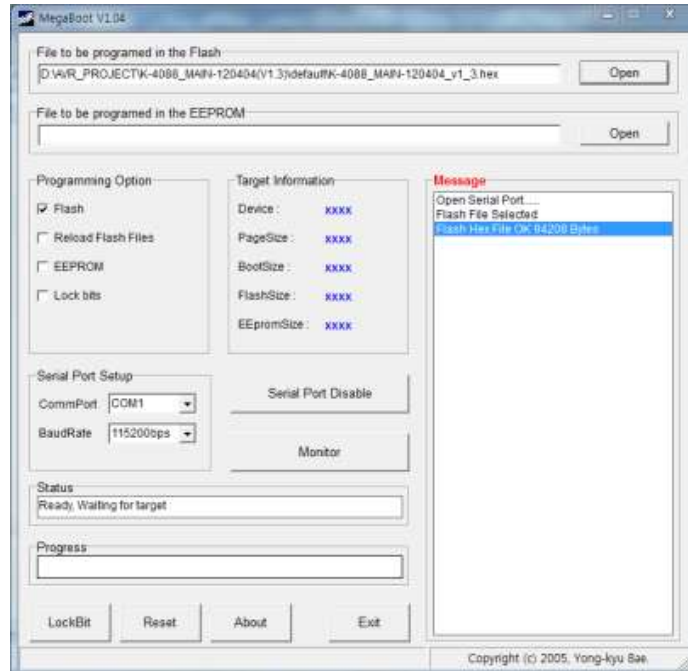Power it on pressing Input key number 2 & 5 at the same time.

Click the AVR Icon to execute setup.exe. The following screen will be displayed.
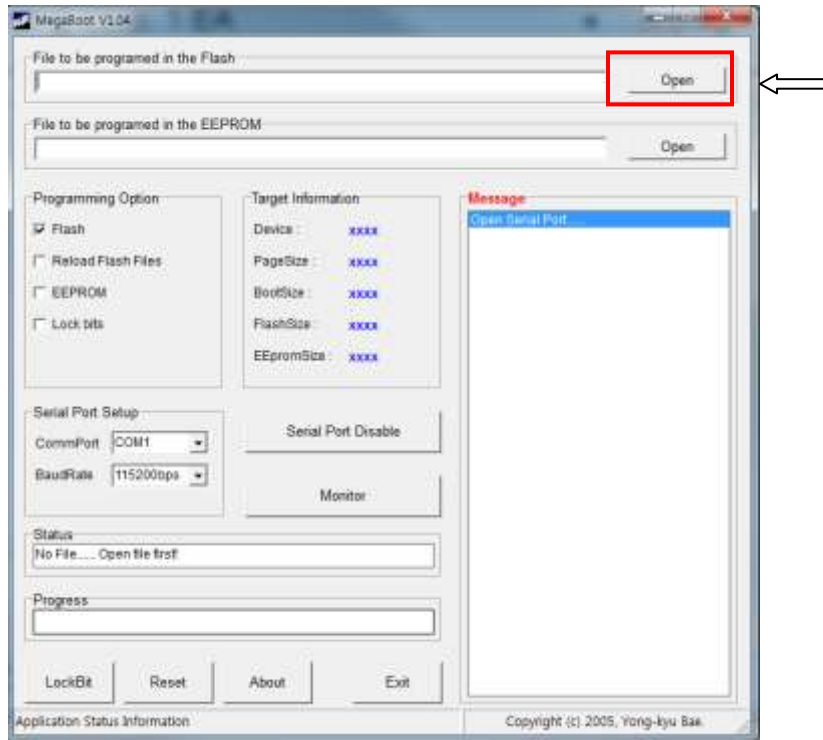
Click on the Open button and select file to be downloaded and click on the open(O) button.
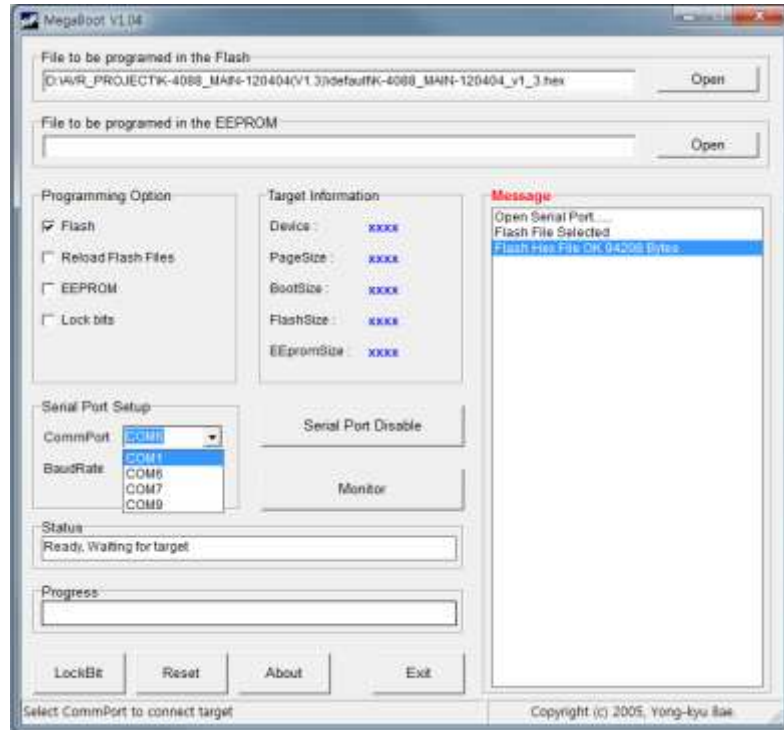
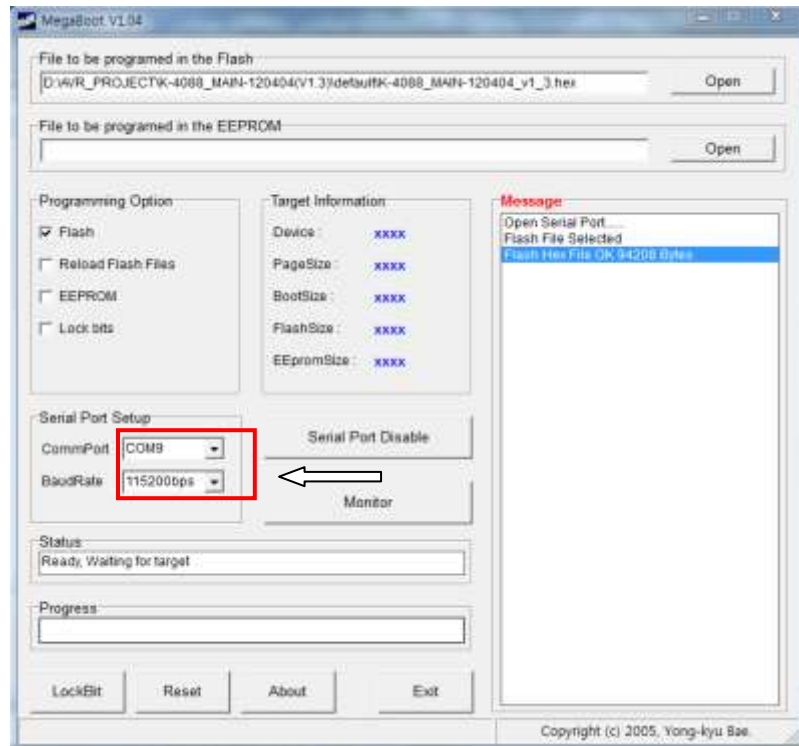Following screen will be displayed.

Next step is Serial Port Setup.
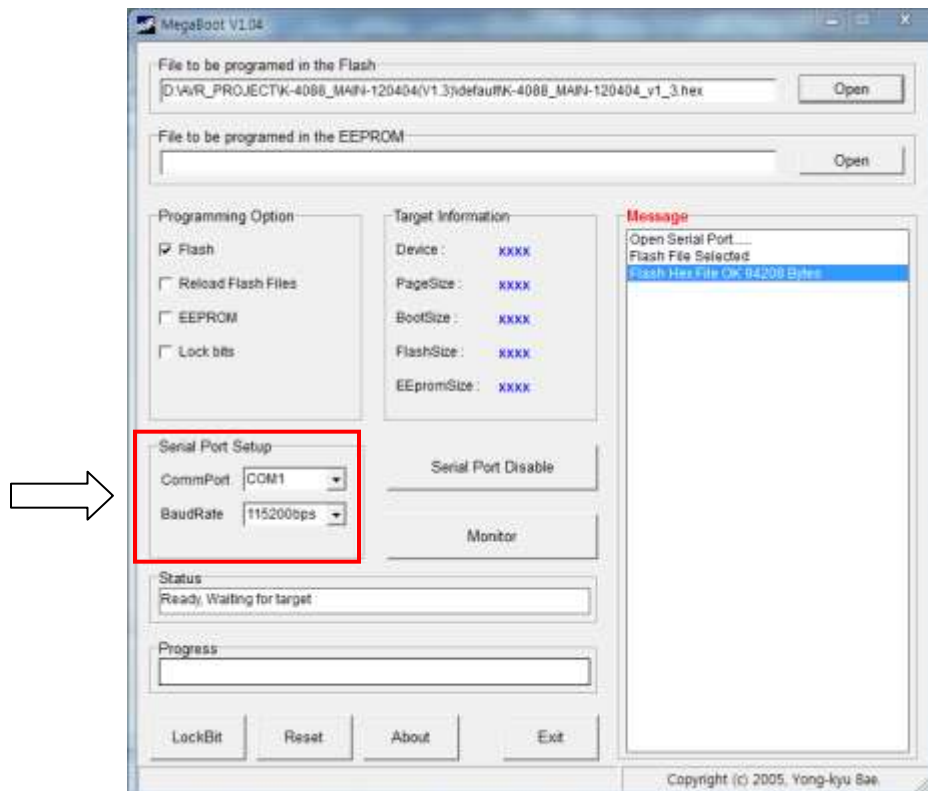
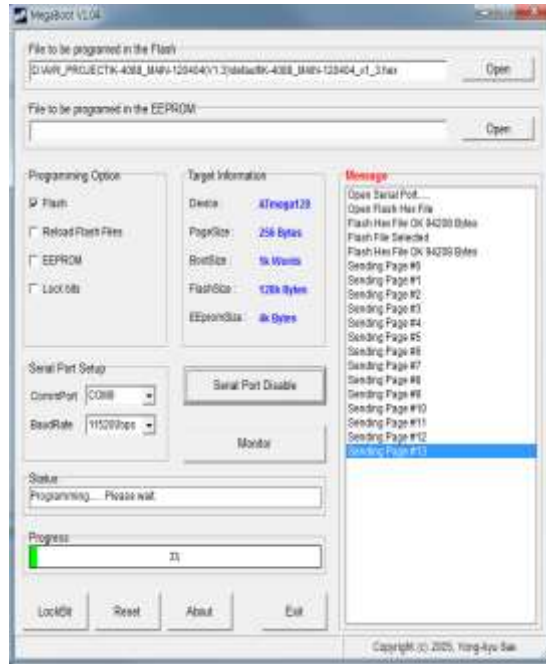Select proper Comm Port and Baud Rate.

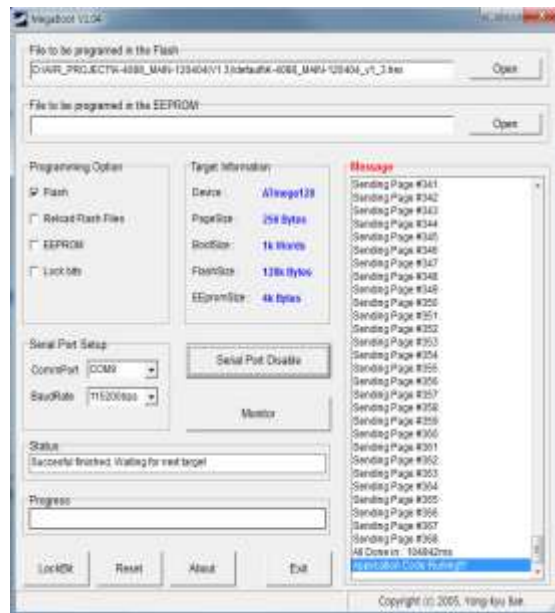Double click on the "Serial Port Disable" button to execute firmware download.

Firmware downloading will be started and the progress will be displayed.

Download completion screen is as below.

Now Router will be operated under new firmware.

USER MANUAL

DVI MATRIX ROUTER : ODM-88

Opticis Co., Ltd.
16Fl, Kins Tower
8 Sungnam-daero, 331 beon-gil,
Bundang-gu,
Seongnam-si, Gyunggi-do, 463-844
South Korea
Te l: +82 (31) 719-8033
Fax: +82 (31) 719-8032

For order support, please contact your Distributor or Reseller.

For technical support, visit Opticis web site, www.opticis.com or contact techsupport@opticis.com