
***HX-6600/8800
HDMI Matrix Router
User Manual***

Table of Contents

- 1. BASIC UNDERSTANDINGS OF THE PRODUCT 3**
 - 1-1 CAUTIONS FOR SAFETY 3*
 - 1-2 PACKAGE INCLUDES 4*
 - 1-3 FEATURES OF THE PRODUCT 4*
 - 1-4 NAMES AND FUNCTIONS OF EACH PART 5*
 - 1-5 INSTALLATION ENVIRONMENTS AND METHODS 5*
- 2. FUNCTIONS OF THE PRODUCT 6**
 - 2-1 FEATURES OF THE PRODUCT (THREE STACK CONFIGURATION) 6*
 - 2-2. SYSTEM OPERATION CONFIGURATION DIAGRAM 8*
 - 2-3 SPECIFICATIONS OF THE PRODUCT 9*
- 3. HOW TO USE 9**
 - 3-1 HOW TO SET CHANNELS 9*
 - 3-2 PRODUCT NUMBER SETTING 10*
 - 3-3 RS-232C(COM PORT) COMMUNICATION SETTING 11*
- 4. COMMUNICATION CODE CONFIGURATION..... 11**
 - 4-1 CONFIGURATION OF RS-232C COMMUNICATION CODE 11*
 - 4-2 LAN (TCP/IP) COMMUNICATION SETTING 14*
 - 4-3 CONNECTOR PIN ASSIGNMENT 17*
- 5 WARRANTY INFORMATION 18**
 - 5.1 ONE YEAR WARRANTY 18*
 - 5-2 WARRANTY LIMITATION AND EXCLUSION 18*
 - 5-3 RETURNS 18*

1. Basic understandings of the product

1-1 Cautions for safety

- All the safety and user manual should be read before the appliance is operated.
- The safety and operating instructions should be retained for future reference.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this equipment near wet place.
- This product should be operated only from the type of power sources indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your local power company. For equipment intended to operate from battery power, or other source, refer to the user manual.
- This equipment may be equipped with a 3 wire grounding-type plug, a plug having a third (grounding) pin. This pin will only fit in to a grounding type power outlet. This is a safety feature. If you are unable to insert the plug in to the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- Opening in the cabinet are provided for ventilation and to ensure reliable operation of the equipment and to protect it from overheating. The openings should never be blocked.
- Do not use any damaged power cords or plugs, or loosed outlets, this may cause electrical shock or fire.
- Do not put heavy articles such as other equipments on this product.
- Keep it away from liquid, magnetic, inflammable substances.
- Turn off power before you insert or take out flash card. Otherwise, the flash card can be damaged.
- It is suggested to perform the product three minutes after the power is on for a precise measurement and analysis.

1-2 Package Includes

- Main body: HX-6600 / 8800
- Power adapter: DC12V, 5A 60W
- RS232C cable
- Rack Ears
- User's manual
- IR Remote Controller

1-3 Features of the product

HX-6600/8800 receives signals from HDMI output ports or equipments compliant to HDMI Ver. 1.3, and sends them to multiple displays. It can receive up to HDMI signals by three-stack configuration and connect to six ports.

- Compliant to HDMI v1.3, the next generation standard for A/V
- 19" standard rack type case (3U)
- Imbedded monitor distribution function for all output channels
- Enhanced quality and color of digital signals
- External EDID read function, supports HDMI or DVI displays.
- Can use up to 32 HDMI sources in a 3 stack configuration (HX-8800)

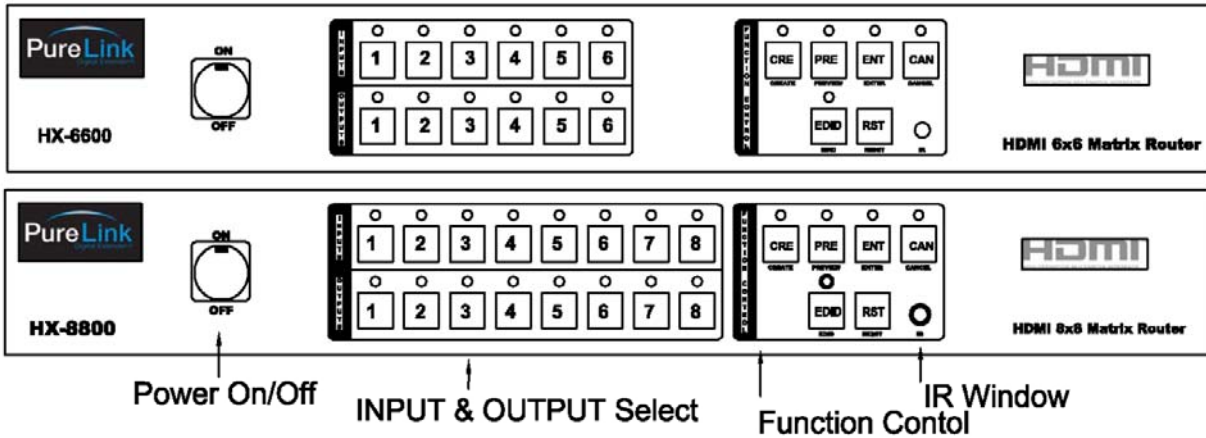
Supporting Function

- Supports high resolution up to WUXGA(1920x1200), 480p~1080p
- Control through 4 different method
 - Select directly with front push button
 - Use IR remote controller
 - Control method through RS-232C COM port
 - Select by LAN (TCP/IP): optional
- It has an instantaneous noise protection circuit in input and output ports; therefore it can protect expensive equipment from fault caused by noises (if any).
- Convenient to change firmware through direct update by PC.

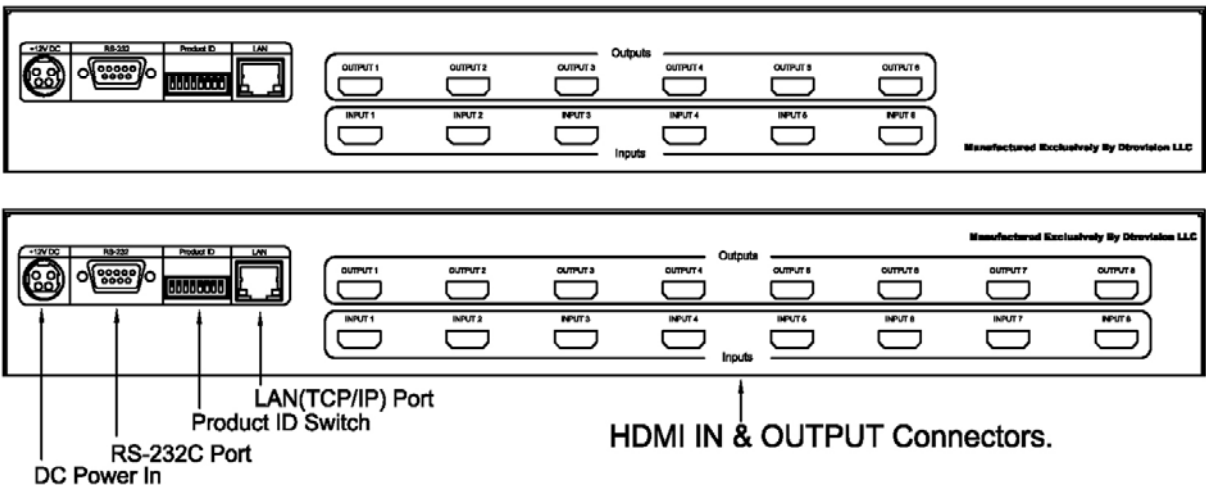
1-4 Names and functions of each part

< FRONT & BACK PANEL >

FRONT SIDE



BACK SIDE



1-5 Installation environments and methods

For installation, we recommend the following environments.

- Below 85 F (30°C) of ambient temperature (Best condition)
- Install and operate in the environment below 60% of ambient humidity (Best condition)

- Use it in the environment of free of vibrations and dusts and in good ventilation condition
- Recommend stabilized AC input power (Recommend to use AVR)

2. Functions of the product

2-1 Features of the product (Three Stack Configuration)

This equipment receives signals (8 input ports) from HDMI output ports or equipments compliant to HDMI specification and sends out to through any of output ports. It can receive up to 32 input signals in a 3 stack configuration and give out any of 8 output ports.

The output resolution in a 3 stacks configuration is also up to 1920 * 1200 and 1080p @60 Hz. The signals are controllable manually or from remote computers through RS-232 or LAN communication.

System configuration (As for 3 stacks configuration)

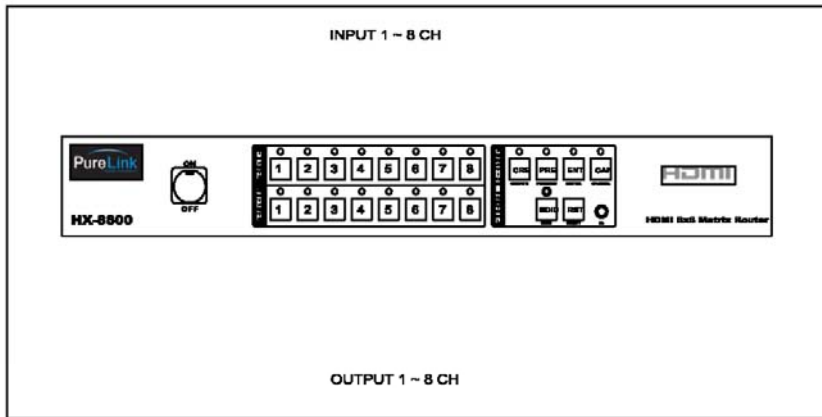
Input: 32 channels

Output: 8 channels

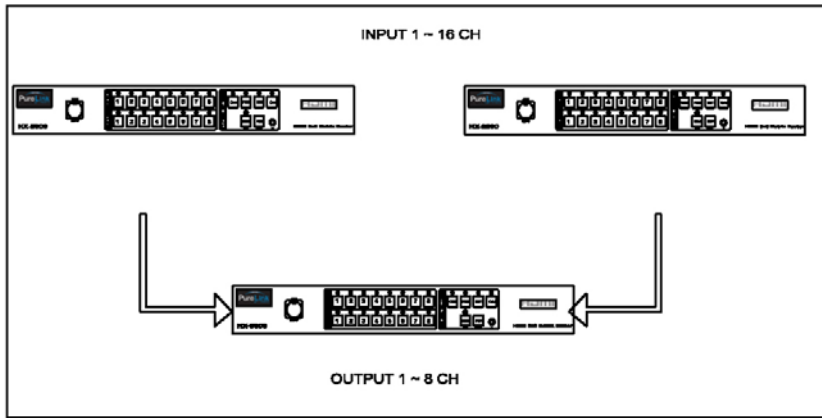
Input and output configuration: [8 : 8] * 4 sets, [8 : 8] * 2 sets, [8 : 8] * 1 set.

Input and output connection: 1 output port can select any of 32 input ports. The connection is the shape of 32 input-32 output -> 16 input- 16 output -> 8 input - 8 output.

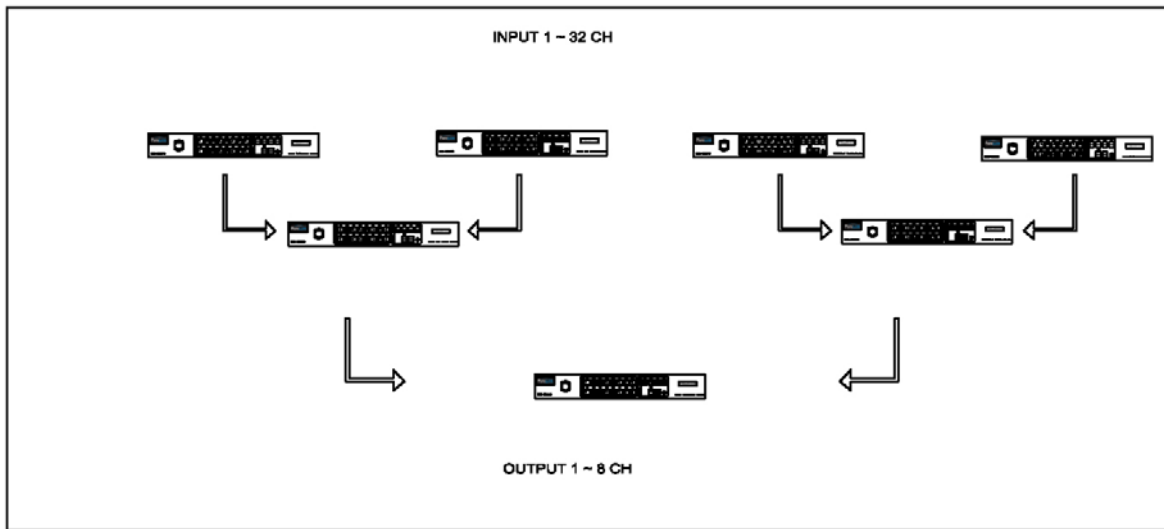
1 Stack Configuration



2 Stack Configuration



3 Stack Configuration

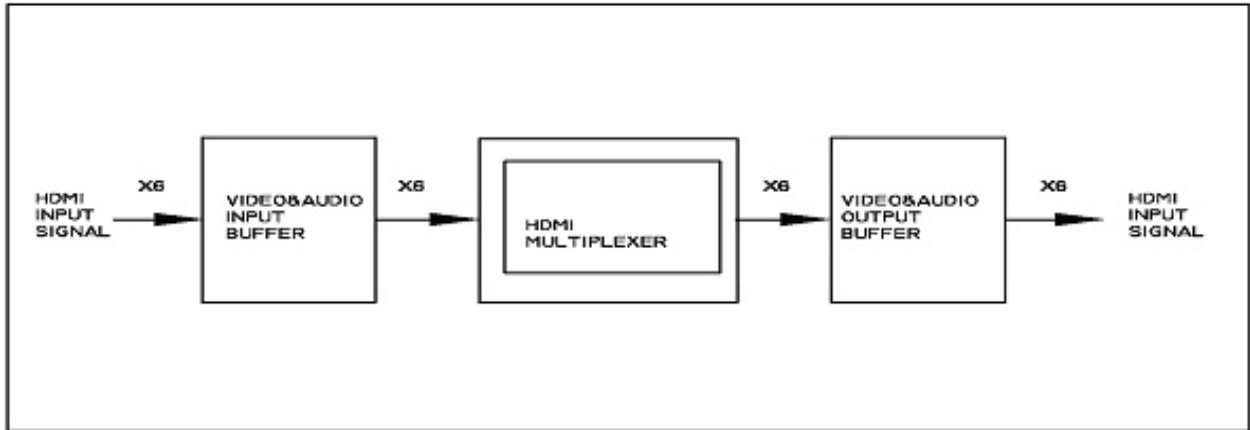


2-2. System operation configuration diagram

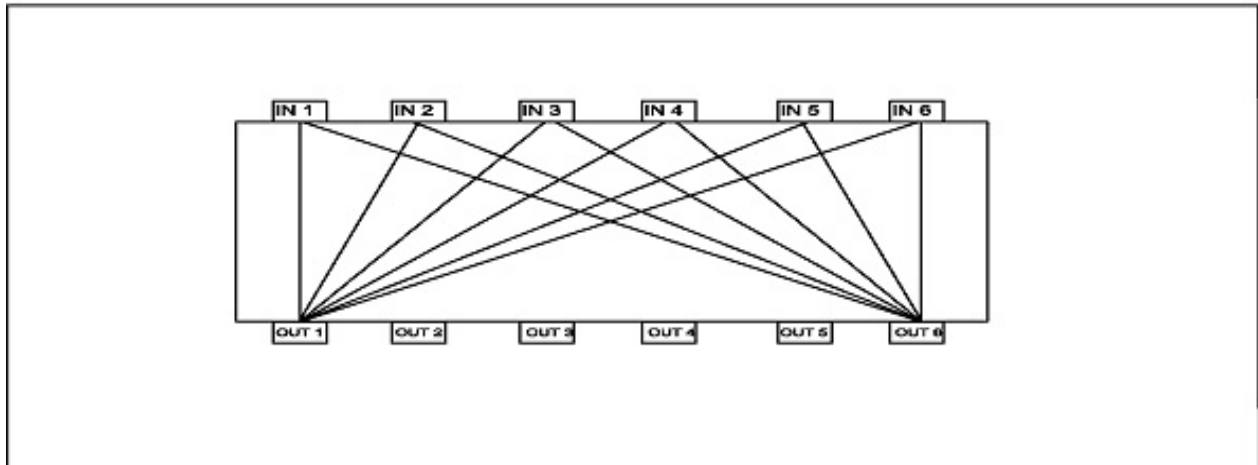
Operation configuration diagram of the matrix is shown in following picture.

Any of the HDMI or DVI input signals can be selected to each output port by external RS-232C or front panel button.

Internal Configuration Block of HDMI Matrix



Internal Connection Structure of HDMI Matrix



2-3 Specifications of the product

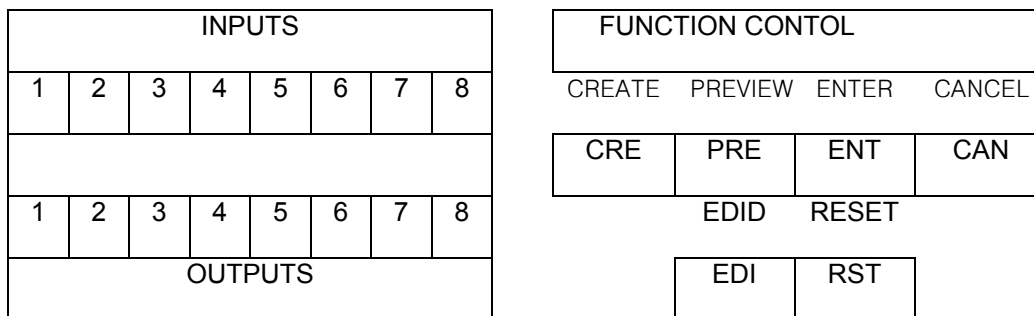
- Type of signals: TMDS signals, digital R.G.B. & Audio
- Data transmission band: up to 1.65Gbps (single link).
- Resolutions: WUXGA (1920*1200), 480p~1080i/p
- Output port control: Front panel button switch, IR remote controller, RS-232C port, LAN (TCP/IP)
- Input-output port: input 6 / output 6 , input 8 / output 8
- Input-output connector: HDMI 19 pin female
- Power source: DC12V, 5A
- Power consume: 20 Watt
- Size (Width * Length *Height): 445 * 222 * 60 mm
- Weight: 3.0kg

3. How to use

3-1 How to set channels

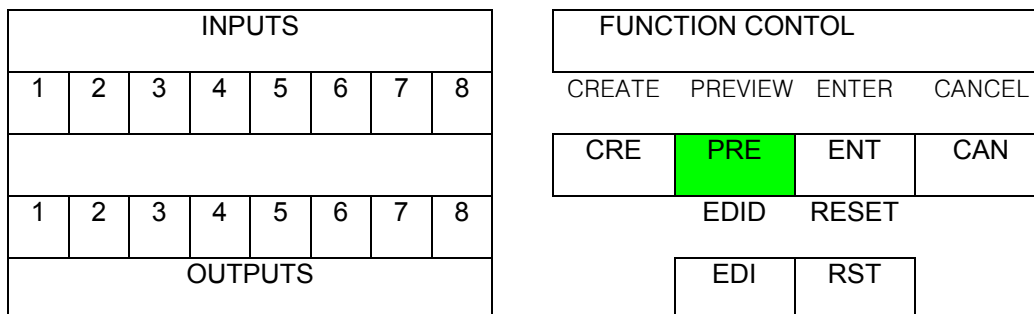
If matrix switched ON, then preview buttons are displayed with 2 steps as follow.
If each preview button is lit, then the initialization is completed.

1. Initialization display



2. Channel display and input selection

After the completion of the initialization, preview is lit.



The functions of the switches are as follow.

- Main power switch: Matrix power on/off
- Remote controller receiver: receive infrared ray from remote controller
- Reset key: initialize the matrix
- Input key: select channel from 1 to 6
- Output key: select channel from 1 to 6
- Create (CRE) key: change input/output channel
- Preview (PRE) key: preview the status of current connection
- Enter (ENT) key: save current selection
- Cancel (CAN) key: cancel current selection
- EDID (EDI) key: read EDID data from display, which is connected to output ports

Switching channel by Push button

Input/output channel check:

Preview (PRE) button → Enter (ENT) button: present set channels are displayed in sequence

Input/output channel change

Create (CRE) button → Input button to be set → Output button (Multiple selection) → Enter (ENT) button: the selection of the channels are changed

* In order to cancel, then press cancel button.

Example: CH# 1 input to 1,2,3,4 output same pictures

Create -> Input 1 -> Output 1,2,3,4 -> Enter

Save EDID data

EDID (EDI) button → Output button to be set → Input button to be set → Enter (ENT): read EDID data of display and write to matrix (Should connected matrix output to display (HDTV) and display power on)

Switching Channel by Remote Control unit

Create ->IN ->1 ->OUT -> 1,2,3,4-> Enter

3-2 Product number setting

- Product ID setting (DIP switch)

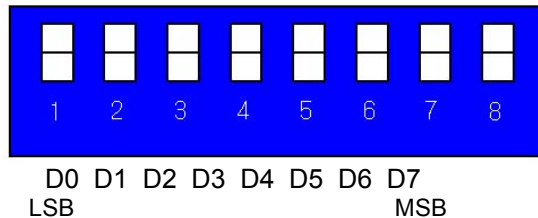
- It sets each address of matrixes if many matrixes are used.
- It sets in binary values.

Ex)

Product ID = 01 (00000001b) -- 1 ON, 2 OFF, 3 OFF, 4 OFF, 5 OFF, 6 OFF, 7 OFF, 8 OFF,

Product ID = 10 (00001010b) -- 1 OFF, 2 ON, 3 OFF, 4 ON, 5 OFF, 6 OFF, 7 OFF, 8 OFF,

Product ID = 23 (00010111b) -- 1 ON, 2 ON, 3 ON, 4 OFF, 5 ON, 6 OFF, 7 OFF, 8 OFF



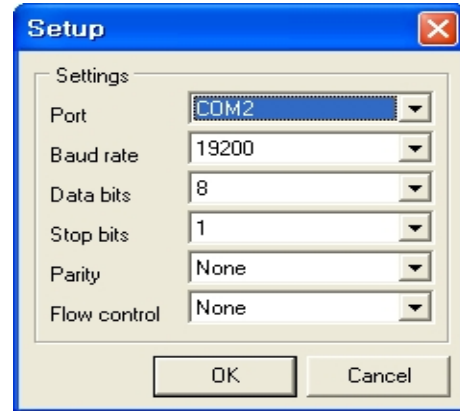
- The product number is the value set in deep switches of the equipment and can be set in the values of 1 ~ 255. The value "0" cannot set the channel.

**The product ID is set number “1” at the time of its delivery (Factory Default).

3-3 RS-232C (COM PORT) communication setting

After booting the matrix, connect RS-232C cable and then make communication settings as follows:

- Execute MiniTerm.exe or hyper terminal.
- Communication setting:
You may set port COM 1 ~ 4 or you may use all available ports.



4. Communication code configuration

4-1 Configuration of RS-232C communication code

From Computer		
Code (46Byte)	Start Header (3Byte) Product ID (2Byte) Command (2Byte) Data (38Byte) Tail (1Byte)	
Code Name	Byte Data	Function
Start Header	21h (!)	Request Frame Start
Start Header	30h (0)	Request Frame Start
Start Header	31h (1)	Request Frame Start
Product ID	30h ~ 39h (DIP Switch Set)	Product Number
Product ID	30h ~ 39h (DIP Switch Set)	Product Number
Command	01	Input SW Assign
	02	Input SW Assign Salvo
	03	EDIE SW Assign
	04	EDID SW Assign Salvo
	10	Assignment Status Request
	20	Reset
	30	Firmware Version Request
	40	RS232C Assign
Input Data10	30h ~ 39h	Input Channel Select
Input Data1	30h ~ 39h	Input Channel Select
Output First Data10	30h ~ 39h	Output A Input Select Data
Output First Data1	30h ~ 39h	Output B Input Select Data
Output Last Data10	30h ~ 39h	Output N Input Select Data
Output Last Data1	30h ~ 39h	Output O Input Select Data
Tail (End)	2Ah(*)	Frame End

From Matrix		
Code (4Byte)	Head (1byte)	Address (1Byte) PN (1Byte) Tail (1Byte)
Code Name	Byte Data	Function
Head (Start)	21h	Reply Frame Start
Start Header	30h (0)	Request Frame Start
Start Header	31h (1)	Request Frame Start
Product ID	30h ~ 39h (DIP Switch Set)	Product Number
Product ID	30h ~ 39h (DIP Switch Set)	Product Number
PN	1 ~ 255 (DIP Switch Set)	Product Number
Tail (End)	2Ah	Frame End

Example of RS232 communication code when product ID is set to “01”.

INPUT SW ASSIGN: change Input 5 to three outputs (output 3, 4, 6)

Byte	Header			ID		Command		Number of Output		Input		Output 1		Output 2		Output 3	
ASCII	!	0	1	0	1	0	1	0	3	0	5	0	3	0	4	0	6
Hex	21h	30h	31h	30h	31h	30h	31h	30h	33h	30h	35h	30h	33h	30h	34h	31h	36h
Byte	Tail																
ASCII	*																
Hex	2Ah																

INPUT SW ASSIGN SALVO: change all Input/output channels

Byte	Header			ID		Command		Output1 of Input		Output2 of Input		Output3 of Input		Output4 of Input		Output5 of Input	
ASCII	!	0	1	0	1	0	2	0	1	0	2	0	3	0	4	0	5
Hex	21h	30h	31h	30h	31h	30h	32h	31h	31h	30h	32h	30h	33h	30h	34h	30h	35h
Byte	Output6 of Input		Tail														
ASCII	0	6	*														
Hex	30h	36h	2Ah														

EDID SW ASSIGN : save EDID data of Output 5 to Input 1 and Input 2

Byte	Header			ID		Command		Number of Output		Output		Input 1		Input 2		Tail	
ASCII	!	0	1	0	1	0	3	0	2	0	5	0	1	0	3	*	
Hex	21h	30h	31h	30h	31h	30h	33h	30h	32h	30h	35h	30h	31h	30h	33h	2Ah	

EDID SW ASSIGN SALVO: change all EDID data

Byte	Header			ID		Command		Input1 of Output		Input2 of Output		Input3 of Output		Input4 of Output		Input5 of Output	
ASCII	!	0	1	0	1	0	4	0	2	0	3	0	4	0	5	0	6
Hex	21h	30h	31h	30h	31h	30h	34h	30h	32h	30h	33h	30h	34h	30h	35h	30h	36h
Byte	Input6 of Output		Tail														
ASCII	0	1	*														
Hex	30h	31h	2Ah														

ASSIGNMENT STATUS REQUEST: check the status of present input/output channels

Byte	Header			ID		Command		Tail	
ASCII	!	0	1	0	1	1	0	*	
Hex	21h	30h	31h	30h	31h	31h	30h	2Ah	

RESET: reset the matrix

Byte	Header			ID		Command		Tail	
ASCII	!	0	1	0	1	2	0	*	
Hex	21h	30h	31h	30h	31h	32h	30h	2Ah	

FIRMWARE VERSION REQUEST: check the version of firmware

Byte	Header			ID		Command		Tail	
ASCII	!	0	1	0	1	3	0	*	
Hex	21h	30h	31h	30h	31h	33h	30h	2Ah	

RS-232C ASSIGN: change RS-232C port selection (19200bps)

Byte	Header			ID		Command		Baud rate		Data bit		Stop bit		Parity bit		Tail	
ASCII	!	0	1	0	1	4	0	0	4	0	0	0	0	0	0	*	
Hex	21h	30h	31h	30h	31h	34h	30h	30h	34h	30h	30h	30h	30h	30h	30h	2Ah	

Baud rate:

“ 00 ” : 1920 bps , “ 01 ” : 4800 bps , “ 02 ” : 9600 bps , “ 03 ” : 14400 bps , “ 04 ” : 19200 bps

“ 05 ” : 28800 bps , “ 06 ” : 38400 bps , “ 07 ” : 57600 bps , “ 08 ” : 76800 bps , “ 09 ” : 115200 bps

“ 10 ” : 250000 bps

Data bit :

“ 00 ” : 8 bit , “ 01 ” : 5 bit , “ 02 ” : 6 bit , “ 03 ” : 7 bit

Stop bit :

“ 00 ” : 1 bit , “ 01 ” : 2 bit

Parity bit :

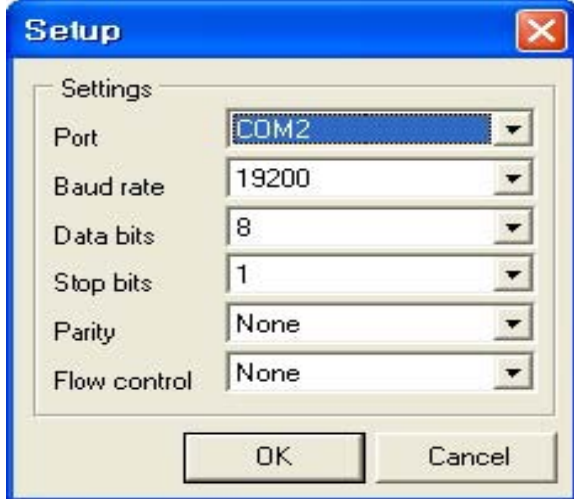
“ 00 ” : disable , “ 01 ” : even parity , “ 02 ” : odd parity

4-2 LAN (TCP/IP) communication setting

In order to control the matrix through LAN port first of all, internet IP should be set.

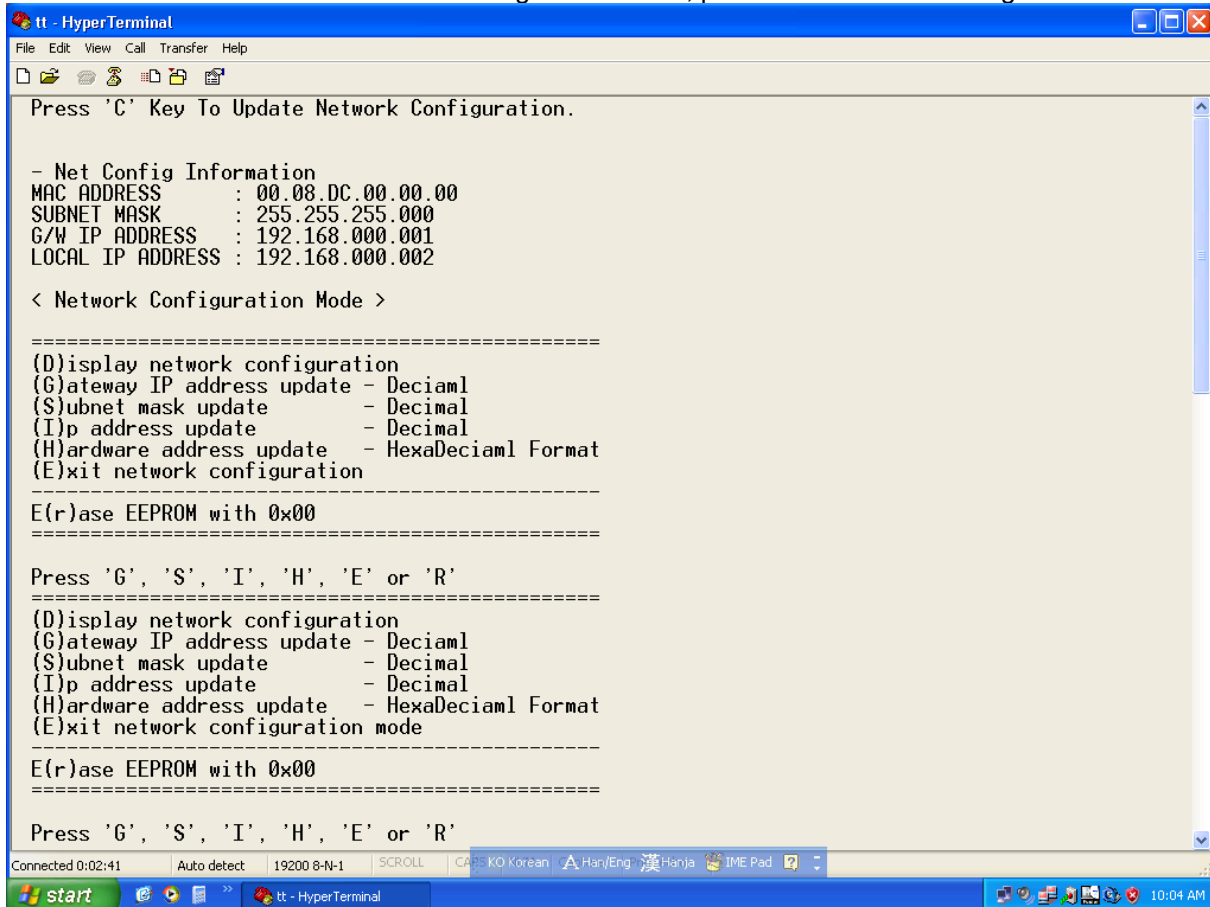
Set up as follows:

- Execute MultiTerm.exe or hyper terminal program
- RS-232 Communication setting for set the IP address.



After setting as above, please connect communication cable via RS232 and then matrix turn on
Press 'C' Key to update network configurations (1 or 2 second after matrix turned on)

If it does not show the follow Network Configuration Mode, please turn it off and on again.



Set up IP Address

```
tt - HyperTerminal
File Edit View Call Transfer Help
-----
E(r)ase EEPROM with 0x00
=====
Enter Source IP Address : 192.168.1.76
=====
(D)isplay network configuration
(G)ateway IP address update - Deciaml
(S)ubnet mask update       - Decimal
-----
(I)p address update        - Decimal
(H)ardware address update - HexaDeciaml Format
(E)xit network configuration mode
-----
E(r)ase EEPROM with 0x00
=====

- Net Config Information
MAC ADDRESS      : 00.08.DC.00.00.00
SUBNET MASK      : 255.255.255.000
G/W IP ADDRESS   : 192.168.001.001
LOCAL IP ADDRESS : 192.168.001.076
=====
(D)isplay network configuration
(G)ateway IP address update - Deciaml
(S)ubnet mask update       - Decimal
(I)p address update        - Decimal
(H)ardware address update - HexaDeciaml Format
(E)xit network configuration mode
-----
E(r)ase EEPROM with 0x00
=====
-----
Connected 0:11:57      Auto detect      19200 8-N-1
start | tt - HyperTerminal
```

D key is displayed existing set information.

G key is input gateway IP.

S key is input subnet mark

I key is input matrix IP

H key is input hardware address

If all inputs are completed, then exit the configuration by press **E** key.

Connect matrix to your network via LAN

1. Switching command at Internet Explorer

It is a receiving data to change channel.

Beginning with character train of "LCD.CGI", "O 01 = I 6" means "Output 01 Input 6", the sequences and sizes of character train should be the same.

After execute reset, it should be connected again to server (switcher).

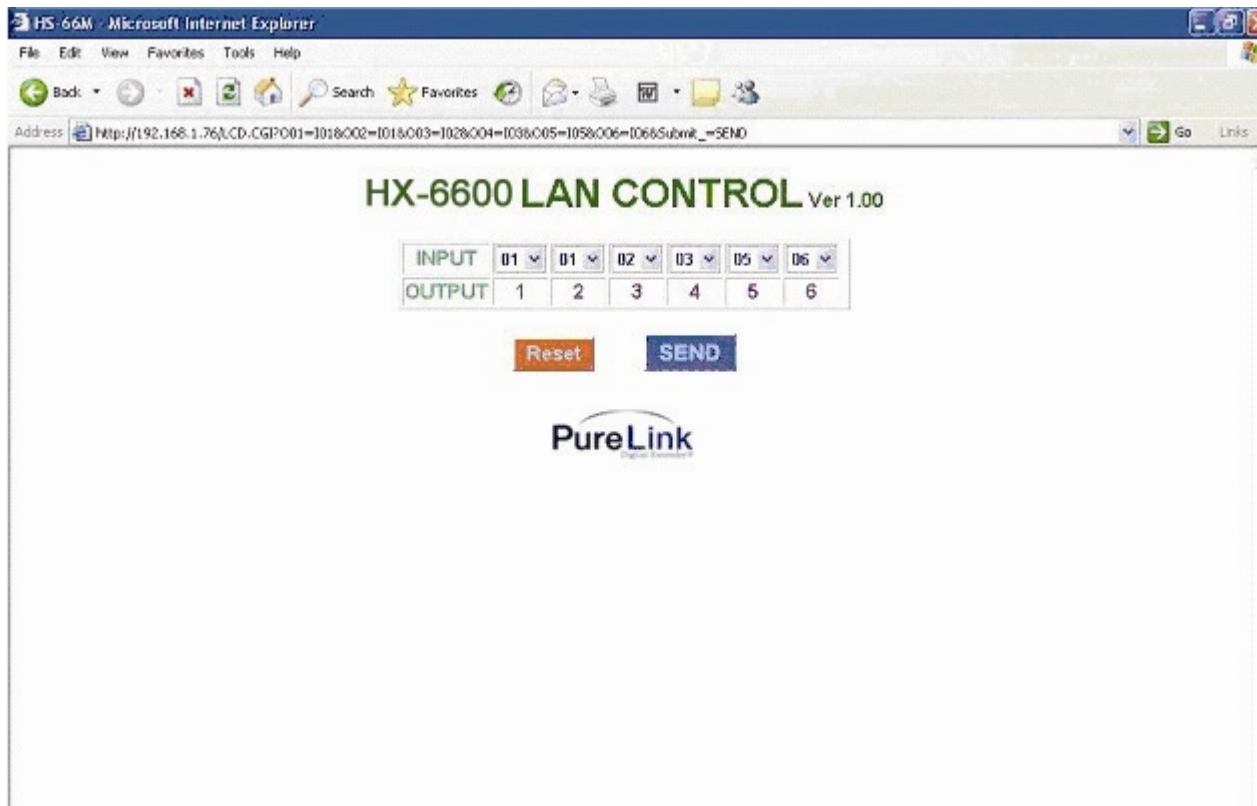
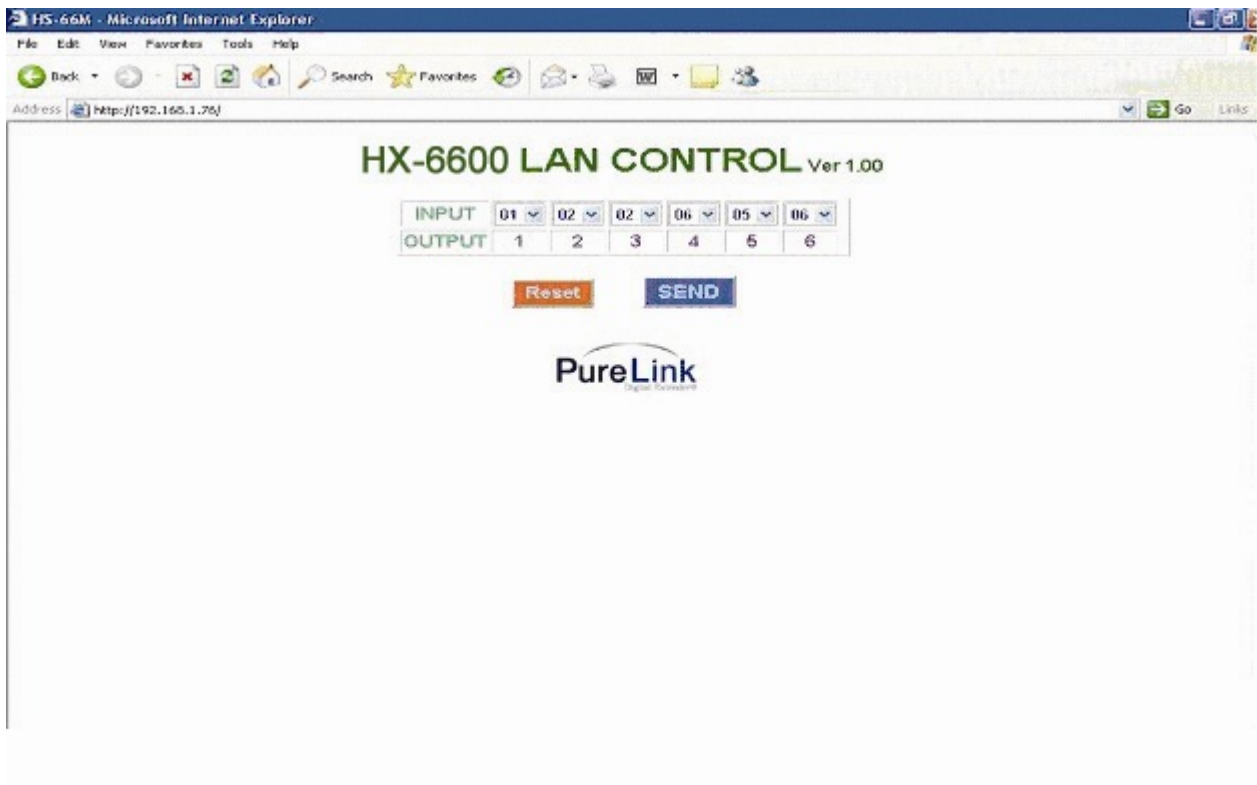
Channel switch

http://192.168.0.02/LCD.CGI?O01=I06&O02=I05&O03=I04&O04=I03&O05=I02&O06=I01 &Submit_=SEND

Initialization (Reset)

http://192.168.0.02/LCD.CGI?O01=I06&O02=I05&O03=I04&O04=I03&O05=I02&O06=I01 &Submit_=Reset

You can also see the commands at Internet Explorer



4-3 Connector Pin Assignment

Power Input

Part No.	Pin No.	Description	Remarks
Power Jack(4P)	1	VCC(DC12V)	
	2	VCC(DC12V)	
	3	GND	
	4	GND	

RS-232C Input

Part No.	Pin No.	Description	Remarks
D-SUB 9 Pin Connector	1	Not used	
	2	Rx D	
	3	Tx D	
	4	Not used	
	5	GND	
	6	Not used	
	7	Not used	
	8	Not used	
	9	Not used	

LAN Input

Part No.	Pin No.	Description	Remarks
RJ-45 8 Pin Connector	1	Transmit data (+)	
	2	Transmit data (-)	
	3	Receive data(+)	
	4	Not used	
	5	Not used	
	6	Receive data(-)	
	7	Not used	
	8	Not used	

HDMI Input

Part No.	Pin No.	Description	Remarks
HDMI 19 Pin Connector	1	TMDS DATA 2P	
	2	TMDS DATA 2 Shield	
	3	TMDS DATA 2M	
	4	TMDS DATA 1P	
	5	TMDS DATA 1 Shield	
	6	TMDS DATA 1M	
	7	TMDS DATA 0P	
	8	TMDS DATA 0 Shield	
	9	TMDS DATA 0M	
	10	TMDS Clock P	
	11	TMDS Clock Shield	
	12	TMDS Clock M	
	13	CEC	
	14	RESERVED	
	15	DDC Clock	
	16	DDC DATA	
	17	GND	
	18	+5v	
	19	Hot Plug Detect	

5 Warranty Information

5.1 One Year Warranty

Dtrovision warrants this HDMI Matrix router to be free from defects in workmanship and materials, under normal use and service for a period of one (1) year from the date of purchase from Dtrovision or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Dtrovision shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund customer the purchase price paid for the defective product.

If the product is defective due to customer's fault or a natural disaster, it is repaired at customer's expense for packing, delivery, part cost, and others.

5-2 Warranty Limitation and Exclusion

Dtrovision shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse or misuse.

- Did not follow the guideline of chapter 1 in this manual
- Misuse or connection with other equipments, which are not compatible
- Took service other than by or its authorized agents
- Natural disaster
- Customer's fault

5-3 Returns

All returns MUST have an RMA number. Please contact your local dealer or, Dtrovision LLC where you purchased this product to obtain RMA number.