BLUSTREAM

7 input Multi-format Presentation Switch

IR
Power

☼ Matrix Switching
☼ Embed

| Mode | HDMI 1 | HDMI 2 | HDMI 3 | HDMI 4 | | Format | Menu | Up | Enter |
| L/R In | HDMI 1 | HDMI 2 | HDMI 3 | HDMI 4 | VGA | YPbPr | AV | Down | Esc |

MFP72
User Manual

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Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Contents

Introduction

Our MFP72 is a multi-format presentation switcher with in-built video scaling, audio embedding, audio de-embedding and EDID management.

The MFP72 works in 2 modes, first as a 7 input dual output switcher, alternatively each output can work independently with output 1 routing the 4x HDMI inputs only and Output 2 switching all 7 video/audio inputs.

With control of the switcher using the front-panel push buttons, IR remote control or RS-232 interface it is an ideal solution for commercial installations.


FEATURES:

- Switcher can function in 2 modes:-
  Splitter mode - Both HDMI output 1 & 2 display the same selected input.
  Matrix Switcher mode - HDMI inputs are independently switchable to HDMI outputs 1 & 2. HDMI output 1 has access to HDMI inputs 1-4 (HDMI signal pass-through including 4K resolution), whilst output 2 has access to all HDMI and Analogue video inputs with associated audio.

- Built-in video scaling, both up-scaling (maximum of 1080p) and down-scaling capabilities (including 4K to lower resolutions).

- Video inputs support all industry standard video resolutions including VGA-WUXGA and 480i-4K.

- Scaled video output resolutions include 720p, 1080P, 1280x1024, 1024x768, 1360x768, 1440x900 & 1680x1050.

- Audio embedding - Independent Analogue L/R audio input can be embedded to HDMI outputs + Analogue L/R audio and Coaxial digital outputs concurrently (Feature available on HDMI outputs 1 + 2 in *Splitter* mode and HDMI output 2 only in *Matrix Switcher* mode).

- HDMI audio breakout to Analogue L/R audio and Coaxial digital outputs concurrently (linked to HDMI output 2 when in *Matrix Switcher* mode).

- Volume control of HDMI, Analogue L/R audio and Coaxial digital outputs.

- Supports all known HDMI audio formats on HDMI pass-through, including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission.

- Front panel display for status feedback.

- Control via front panel, IR and RS-232.

- 3rd Party drivers available for all major home control brands.

- Advanced EDID management.

- HDCP compliant.

Front Panel
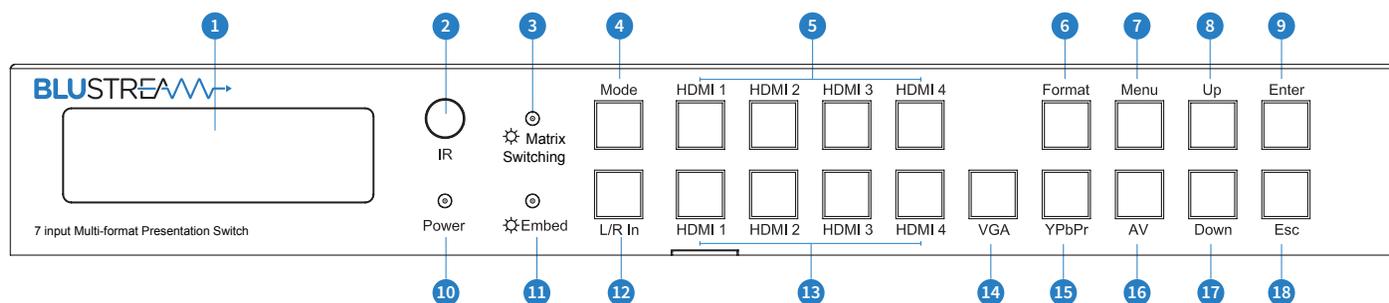
① LCD display - Shows the status of input-output selection, EDID info etc.

② IR receiver window.

③ Matrix Switcher LED indicator - When the LED is lit, **Matrix Switcher** mode is active and both HDMI outputs switch independently. When the LED is not lit the Matrix switcher is in **Splitter** mode and both HDMI outputs will display the same selected video input.

④ Mode button - Press to switch between **Matrix Switcher** and **Splitter** modes.

⑤ HDMI input selection buttons for HDMI output 1 when in **Matrix Switcher** mode.

⑥ Format set button - Press to set the output resolution.

⑦ Menu button - Press to enter EDID set mode, volume setting or F/W information.

⑧ Up selection button - Press to change segment's value.

⑨ Enter button - Press to confirm the settings.

⑩ Power LED indicator - Indicates the status of power.

⑪ Embed LED indicator - When the LED is lit, **Audio embed** mode is active. When active the L/R Analogue input will be embedded onto the HDMI outputs. In **Splitter** mode analogue audio is embedded to both of the HDMI outputs with the ability to adjust the volume. In **Matrix Switcher** mode Analogue audio will only be embedded onto HDMI output 2.

⑫ L/R in selection button - Press to embed the Analogue L/R audio input to the HDMI outputs (as above).

⑬ HDMI input selection buttons 1 to 4 - Press to select the HDMI input switched to output 2 in **Matrix Switcher** mode, or both HDMI outputs in **Splitter** mode.

⑭ VGA input selection button - Press to select the VGA input with associated Analogue L/R audio.

⑮ YPbPr (Component video) input selection button - Press to select the YPbPr input with associated Analogue L/R audio input.

⑯ AV input selection button - Press to select the AV input with associated Analogue L/R audio input.

⑰ Down selection button - Press to change segment's value.

⑱ ESC-Press to exit the menu.

Notes:

• Volume can be changed using IR, RS-232 control or from the front panel UP and DOWN buttons when in the volume menu.

• During F/W mode, pressing the Enter button will show the current F/W information.

Rear Panel
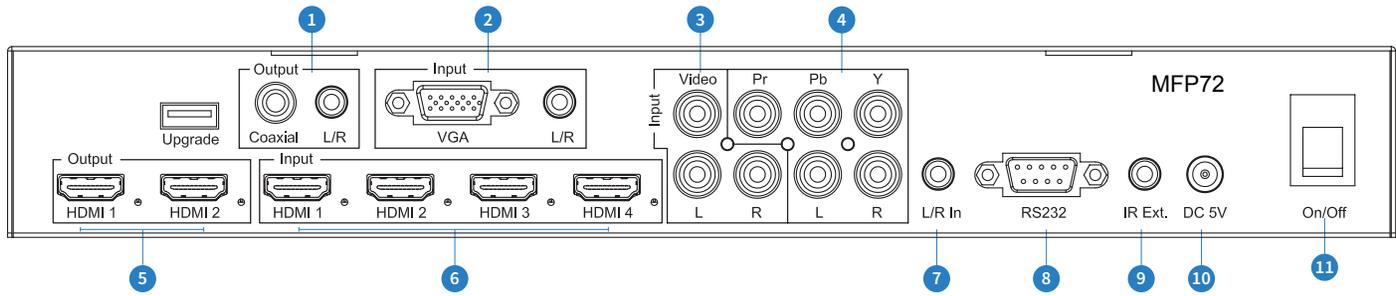
① Coaxial digital and analogue audio outputs - Extracted audio will always follow HDMI output 2 source selection. Note: input must be 2ch PCM for Analogue audio output to work.

② VGA input - VGA input with associated L/R analogue audio input.

③ AV input - Composite video input with associated L/R analogue audio input.

④ YPbPr input - YPbPr input (Component video) with associated L/R analogue audio input.

⑤ HDMI outputs 1 and 2.

⑥ HDMI input 1 to 4 - Connect to HDMI sources

⑦ L/R In - Enables Analogue audio to be embedded onto both HDMI outputs in Splitter mode and HDMI output 2 in Matrix Switcher mode.

⑧ RS232 port - For control of the switcher from PC or control processor

⑨ IR Ext. - Connect to Blustream IR receiver or control processor when using Blustream IRCAB cable (sold separately).

⑩ Power port - Use supplied 5V/2A DC power supply.

⑪ Power switch - Power on/off the unit.

Remote Control Description
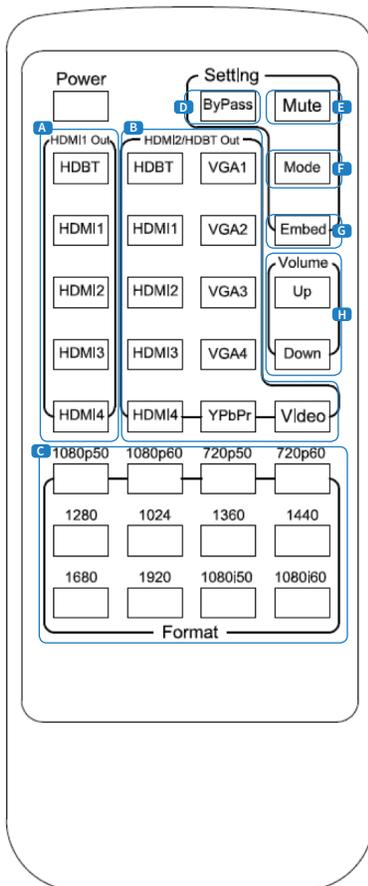
OUTPUT AND INPUT SELECTION

A   Source selection for HDMI output 1 when in *Matrix Switcher* mode.

B   Source selection for HDMI output 2 when in *Matrix Switcher* mode or both HDMI outputs when in *Splitter* mode.

VIDEO OUTPUT RESOLUTION

C.   The MFP72 includes in-built video scaler. To change the HDMI output video resolution press the required resolution button on the bottom of the Blustream remote control.

Settings

D.   **Bypass:** Audio on HDMI outputs is from HDMI input selected.

E.   **Mute:** Mutes the audio on all outputs (HDMI, Coaxial digitial and Analogue audio).

F.   **Mode:** Switches between *Matrix Switcher* mode and *Splitter* mode.

G.   **Embed:** Audio on HDMI outputs is from L/R Analogue audio input (3.5mm Jack).

VOLUME CONTROL

H.   Adjust the audio Volume on all outputs (HDMI, Coaxial digitial and Analogue audio).

Infrared (IR) Distribution

The Blustream range of matrix and switcher products include multiple options for control and routing of IR.

IMPORTANT: Blustream Infrared products are all 5v and NOT compatible with alternate manufacturers Infrared solutions. When using third party 12v IR control solutions please use Blustream IRCAB cable for IR conversion (sold separately).

Each Blustream Matrix and HDBaseT receiver is supplied with all necessary IR hardware required and includes:
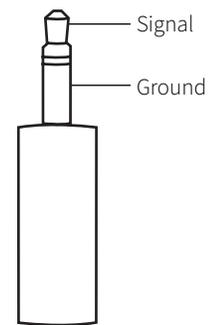
IR Emitter

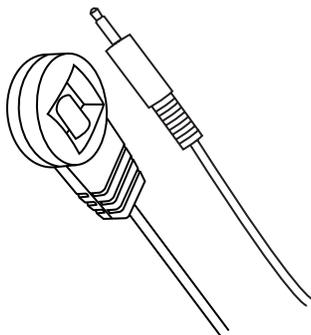Blustream IR Emitter designed for discrete IR control of hardware
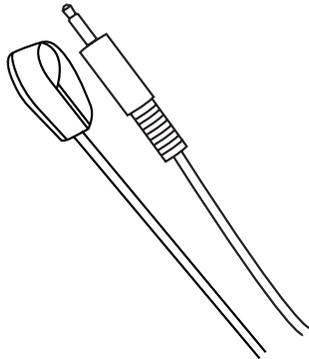
Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

Signal
Ground

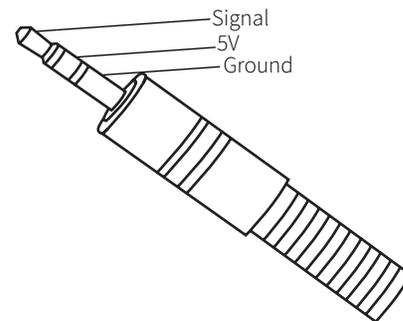**IR Receiver**

Blustream IR receiver to receive IR signal and pass-through Blustream products
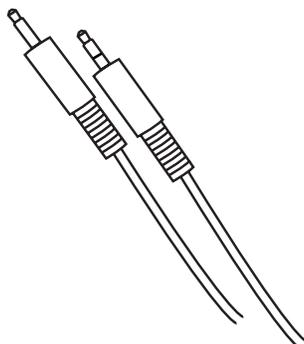
IR Receiver - Stereo 3.5mm

Signal
5V
Ground

IR Control Cable

Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Will work with 12v IR third party products.

Note: Cable is directional as indicated

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EDID Control

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display then from this information the source will determine what the best resolution is to output.

While the objective of EDID is to make connecting a digital display to a source a simple plug and play procedure issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

By pre-determining the video resolution and audio format of the source and display device you can potentially work around compatibility issues associated with some display and source combinations.

The EDID configuration can be altered in 2 ways:

1   Using EDID dip-switches on the rear panel of the unit. Please see table below for settings.
   Note: You must power-cycle the switcher after changes have been made in order for the EDID
   settings to update.
2   Using Matrix Front Panel Buttons
   a.   Press *MENU* button

   b.   Panel will display 'EDID settings'. Press *SELECT* button

   c.   Select the input you wish to fix the EDID on or select 'All'. Use *UP/DOWN* buttons to toggle selection and *SELECT* button to confirm

   d.   Select video resolution required (4K, 1080p, 3D etc). Use *UP/DOWN* buttons to toggle selection and *SELECT* button to confirm

   e.   Select audio format required (2.0, 5.1, 7.1). Use *UP/DOWN* buttons to toggle selection and *SELECT* button to confirm
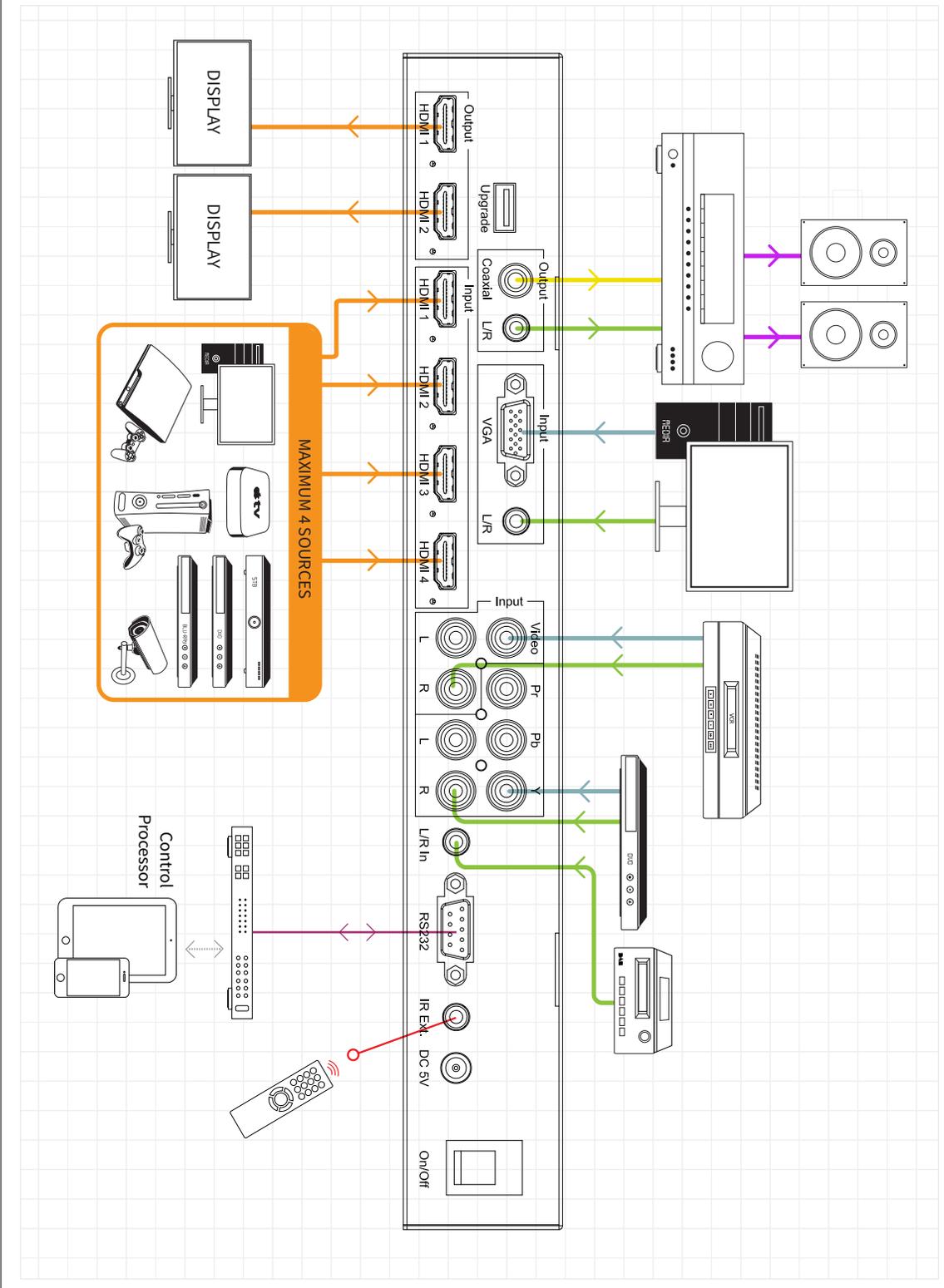
EDID Dip-switch settings:

   [DIP]=0000: HDMI 1080p@60Hz, Audio 2CH PCM

   [DIP]=0001: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/Dolby

   [DIP]=0010: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/Dolby/HD

   [DIP]=0011: HDMI 1080p@60Hz, Audio 2CH PCM

   [DIP]=0100: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/Dolby

   [DIP]=0101: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/Dolby/HD

   [DIP]=0110: HDMI 1080p@60Hz, Audio 2CH PCM

   [DIP]=0111: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/Dolby

   [DIP]=1000: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/Dolby/HD

   [DIP]=1001: HDMI 1080p@60Hz, Audio 2CH PCM

   [DIP]=1010: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/Dolby

   [DIP]=1011: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/Dolby/HD

   [DIP]=1100: HDMI 1080p@60Hz, Audio 2CH PCM

   [DIP]=1101: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/Dolby

   [DIP]=1110: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/Dolby/HD

   [DIP]=1111: HDMI EDID copy (EDID copied from HDMI output 2 display)

NOTE: If the source selected is a VGA input the switcher will automatically output the best resolution possible.

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Example Schematic

MFP72

HDMI
RS232
Optical Digital
Coaxial Digital
Speaker Cable
Analogue L/R Audio
IR Cable

DISPLAY

DISPLAY

MAXIMUM 4 SOURCES

Output

HDMI 1

HDMI 2

Upgrade

Coaxial

HDMI 1

Input

HDMI 2

HDMI 3

HDMI 4

Output

L/R

VGA

Input

L/R

Input

Video

L   Pr

R

L   Pb

R

L/R In

RS232

IR Ext.   DC 5V

On/Off

Control
Processor

www.blustream.co.uk

Specifications:

Video Input Connectors: 4x HDMI Type A, 1x VGA, 1xYPbPr, 1x Composite

Video Output Connectors: 2x HDMI Type A

Audio Input Connectors: 2x 3.5mm Analogue audio stereo jack, 4x Analogue audio RCA (2 x L/R)

Audio Output Connectors: 1x 3.5mm Analogue audio stereo jack, 1x SPDIF Coaxial digital

RS-232 serial port: 1x DB 9 connector

IR Input ports: 1x 3.5mm stereo jack

Dimensions (W x H x D): 323mm x 135mm x 44mm, without feet

Shipping Weight: 1.5Kg

Operating Temperature: 32°F to 104°F (0°C to 40°C)

Storage Temperature : -4°F to 140°F (-20°C to 60°C)

Power Supply: DC 5V/2A

Package Contents:

- 1x MFP72

- 1x 5V/2A power supply

- 1x Remote control

- 1x IR Receiver

- 1x mounting kit

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

RS232 and Telnet Commands

NO.	Command	Action
1	?	Print Help Information
2	HELP	Print Help Information
3	STATUS	Print System Status And Port Status
4	PON	Power On, System Run On Normal State
5	POFF	Power Off, System Run On Power Save State
6	IRON/OFF	Set System IR Control On Or Off
7	KEYON/OFF	Set System KEY Control On Or Off
8	DBGON/OFF	Set Debug Mode On Or Off
9	BEEPON/OFF	Set Onboard Beep On Or Off
10	RESET	Reset System To Default Setting (Should Type "Yes" To Confirm, "No" To Discard)
11	OUTxxFRyy	Set OUTPUT:xx From INPUT:yy xx=00: Select All OUTPUT Port xx=[01...02]: Select One OUTPUT Port yy=[01...04]: HDMI Input 01 ~ 04 yy=AV: AV Input(Output 02 Only) yy=COMP: Component Input(Output 02 Only) yy=VGA: VGA Input(Output 02 Only)
12	OUTSP/MX	Set OUTPUT To Splitter or Matrix Mode
13	OUTRESrr	Set Scaler Output Resolution rr=01: 1080P@50Hz rr=02: 1080P@60Hz rr=03: 720P@60Hz rr=04: 720P@50Hz rr=05: 1280x1024@60Hz rr=06: 1024x768@60Hz rr=07: 1360x760Hz rr=08: 1440x900@60Hz rr=09: 1680x1050@60Hz
14	EDIDxxCPyy	Set Input:xx EDID Copy From Output:yy yy=[00]: yy=[01...08]
15	EDIDxxDFzz	Set Input:xx EDID To Default EDID:zz xx=00: Select All INPUT Port xx=[01...04]: Select One INPUT Port yy=[01...02]: Select One OUTPUT Port zz=00: HDMI 1080p@60Hz, Audio 2CH PCM zz=01: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/DOLBY zz=02: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD zz=03: HDMI 1080i@60Hz, Audio 2CH PCM zz=04: HDMI 1080i@60Hz, Audio 5.1CH PCM/DTS/DOLBY zz=05: HDMI 1080i@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD zz=06: HDMI 1080p@60Hz/3D, Audio 2CH PCM zz=07: HDMI 1080p@60Hz/3D, Audio 5.1CH PCM/DTS/DOLBY zz=08: HDMI 1080p@60Hz/3D, Audio 7.1CH PCM/DTS/DOLBY/HD zz=09: HDMI 4K2K, Audio 2CH PCM zz=10: HDMI 4K2K, Audio 5.1CH PCM/DTS/DOLBY zz=11: HDMI 4K2K, Audio 7.1CH PCM/DTS/DOLBY/HD zz=12: DVI 1280x1024@60Hz, Audio None zz=13: DVI 1920x1080@60Hz, Audio None zz=14: DVI 1920x1200@60Hz, Audio None
16	AUDSCAORG	Scaler Audio Input Follow Port Selection
17	AUDSCAANA	Scaler Audio Input From Analog L/R Signal
18	AUDxx	Set Scaler Audio Volume xx=[00...30]: Volume Value

RS-232 Pin Assignment

MFP72		REMOTE CONTROL CONSOLE	
PIN	Assignment	PIN	Assignment
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC

Baud Rate: 57600 bps

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

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