



**HDMI-X88
Operation Manual**



● *Safety Precautions*

Please read all instructions before attempting to unpack or install or operate this equipment, and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

1. Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
2. To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
3. Never spill liquid of any kind on or into this product.
4. Never push an object of any kind into this product through module openings or empty slots, as you may damage parts.
5. Do not attach the power supply cabling to building surfaces.
6. Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.
7. To protect the equipment from overheating, do not block the slots and openings in the module housing that provide ventilation.

● *Revision History*

<i>Version No</i>	<i>Date</i>	<i>Summary of Change</i>
<i>V1</i>	<i>20090805</i>	<i>Preliminary release</i>

SPATZ
Mühlhauser Str.5
73344 Gruibingen
Germany www.spatz-tech.com

Tel. +49-7335-921400
Fax. +49-7335-921402
e-mail: spatz@spatz-tech.de

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1. Introduction

The HDMI-X88 matrix supports HDMI 1.3, HDCP 1.1 and DVI 1.0, and can transfer Deep Color video and bit stream digital audio.

**The unit cannot transcode any audio, so once the source format is selected all displays routed to the input must support this audio format !!!
The same is true for the video resolution !**

If you want to run a multichannel system and 2-ch system at the same time, the easiest solution would be to have one source set to multichannel and a second source to be a 2-ch. Reconfiguring audio output modes of sources is not recommended, as most of the times this would result in a very complicated programming of your control system if not impossible at all.

The EDID management is independent of input and may be selected to be a computed combination of displays connected to output 1-4 or built-in EDID with resolutions up to 1080p and 2-ch PCM audio.

2. Applications

- Multiple HDMI sources connected to multiple HDMI or DVI displays

3. Package Contents

- 8 by 8 HDMI V1.3 Matrix
- Remote Control CR33 with battery
- 24V DC power adaptor
- Power cord
- User Manual

5. Features

- HDMI 1.3, HDCP 1.1 and DVI 1.0 compliant
- Supports digital video formats in Deep Color 10 bits and new lossless compressed (Dolby TrueHD, Dolby Digital Plus and DTS HD Master Audio) digital audio
- The HDMI input signal is compensated, clock/phase adjusted and jitter reduced.
- Supports recall, memory and key lock function
- Compatible with all HDMI sources and displays
- Supports a wide range of PC and HDTV resolutions from VGA to UXGA and 480i to 1080p
- Supports RS-232 control and firmware upgrading through USB port
- Supports IR remote control and IR extender
- Dolby Digital, DTS digital audio transmission (32-192kHz Fs sample rate)
- Supports LPCM 7.1 channel output from each of the independent HDMI ports
- Depending on the quality of cable and used video resolution the matrix can drive or equalize typically up to 30m of SPATZ cable at 1080i or 720p resolutions.
- Independent switchable EDID function for each input.
- Supports 38KHz IR extender
- Useful hot keys for quick set up

6. Specifications

Input Ports	8 x HDMI
Output Ports	8 x HDMI
IR Frquency	20~60KHz
Power Supply	24VDC/6.25A (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human body model: $\pm 10\text{kV}$ (air-gap discharge) $\pm 6\text{kV}$ (contact discharge)
Dimensions (mm)	482(W) x385(D) x 176(H)
Weight(g)	9500
Chassis Material	Aluminum
Silkscreen Color	Metal Black
Power Consumption	100W
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (no condensation)

- ⑨ RECALL: Select this button in order to retrieve one of your six Presets, then press enter to confirm your selection.
- ⑩ OUT A~H & IN 1~8: These buttons are used to manually change the routing or programm the PRESETs. With the first press you select the output you want to change, with the next press you route one of the 8 inputs to this output. The cursor in the display will blink and indicate the operation. Once you hit the ENTER button the matrix will engage the new routing.

Notes:

1. If the EDID is switched to the TV mode the matrix will first detect the HDMI displays EDID from A-D and then record it in the unit regardless of what is connected to output E-H. If the first detected display is a DVI display it will go to the next output, until the first HDMI is detected. The detection priority is HDMI v1.3 > HDMI v1.2 > DVI.

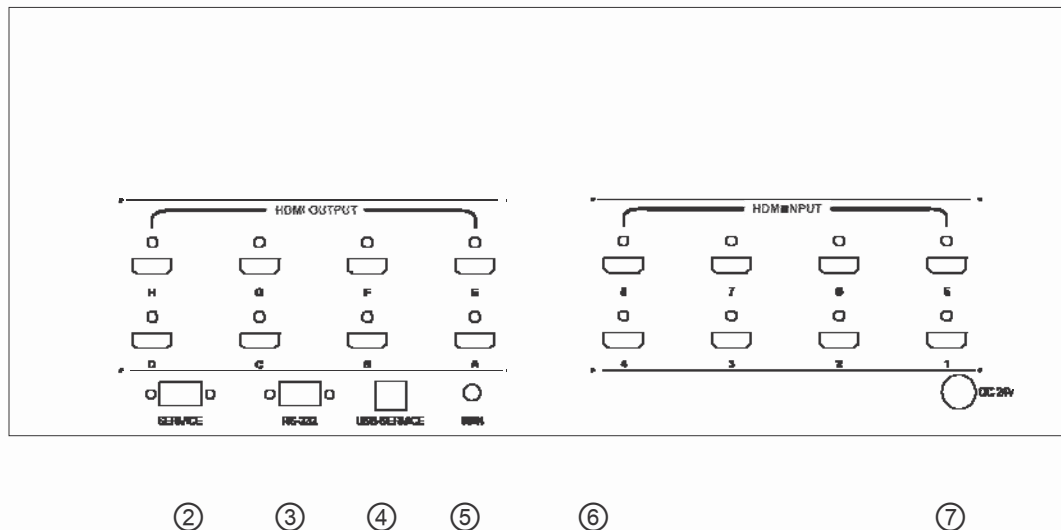
It is recommended to use the HDMIFIX if there are many different sources and displays connected to this matrix because this EDID manager with SingleEDID technology can force the inputs in a definite output resolution that must be compatible with all displays connected.

2. If you select STD, the active input will report the built-in EDID Video Supports that is up to 080p with 10 bits (max) Audio Supports = PCM2

In General setting up a matrix it not a task for a semiprofessional user. HDMI offers a wide range of video resolutions and audio formats and even if the HDMI-X88 can pass all kinds of signals it cannot transcode audio formats or scale video resolutions.

It is even more complicated if DVI and HDMI sources and HDCP and non HDCP compatible displays are used.

7.2 Rear Panel

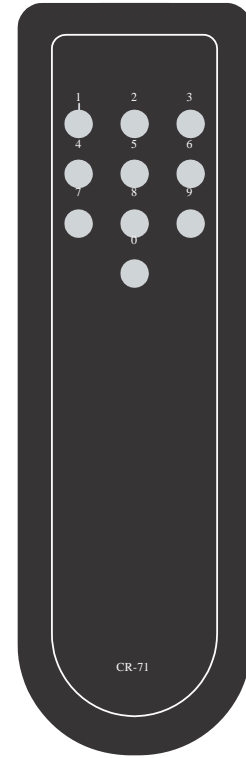


- ② SERVICE: D-sub 9 male pin connector cable to your host, in order to upgrade your firmware.
- ③ RS-232: D-sub 9 female pin connector cable to your host so you can control an 8x8 HDMI Matrix by a control system or computer.
- ④ USB SERVICE: Here you can connect a USB b type connector cable to your host to update the firmware of the matrix.
- ⑤ IR IN: This is where you can extend your IR receiver with an IR extender cable that accepts only 38KHz.
- ⑦ DC 24V: Plug the 24V DC power supply into the unit and connect the adaptor to an AC wall outlet.

8. Remote Control

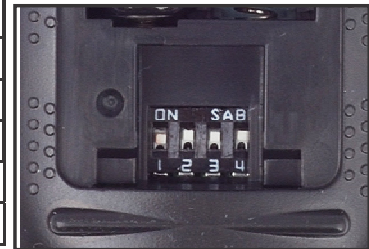
The remote supplied with this matrix has dip switch settings that may restrict what outputs of the matrix you can control. This is very suitable if you use the matrix in a residential environment and want a remote for each display (typically one per room) to change the input routing for this display.

In general the remote buttons work in the same way as the buttons on the matrix if all dip switches are in the ON/↑ mode. The first button press selects the output and the second press (wait a sec) which input you want to route to this input. Once the remote has been configured to control only one output according to table 8.2 each button press will change the input.



8.1 IR Custom Code

NO.	DATA
1	88
2	89
3	8A
4	8C
5	8D
6	8E
7	90
8	91
9	92
0	95



8.2 Discrete IR codes for 8x8 HDMI matrix (IR3)

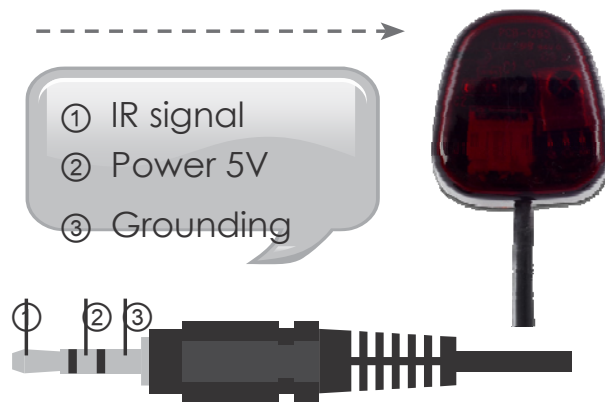
Select / Dipswitch	input 1	input 2	input 3	input 4	input 5	input 6	input 7	input 8
output A ↓↓↓↓	0cx88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output B ↑↓↓↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output C ↓↑↓↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output D ↑↑↓↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output E ↓↓↑↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output F ↑↓↑↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output G ↓↑↑↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91
output H ↑↑↑↓	0x88	0x89	0x8A	0x8C	0x8D	0x8E	0x90	0x91

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9. IR Pin Assignment

9.1 IR Receiver



10. RS-232 Protocols

10.1 Pin Assignment

HDMI-X88 Matrix			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
8	NC		8	NC
9	NC		9	NC

Baud Rate: 9600bps

Data bit: 8 bits

Parity: None

Flow Control: None

10.2 Commands

COMMAND	ACTION
POWER 00	Power Off (standby)
POWER 01	Power On
PORT 11	Output A select Input1
PORT 12	Output A select Input2
PORT 13	Output A select Input3
PORT 14	Output A select Input4
PORT 15	Output A select Input5
PORT 16	Output A select Input6
PORT 17	Output A select Input7
PORT 18	Output A select Input8
PORT 21	Output B select Input1
PORT 22	Output B select Input2
PORT 23	Output B select Input3
PORT 24	Output B select Input4
PORT 25	Output B select Input5
PORT 26	Output B select Input6
PORT 27	Output B select Input7
PORT 28	Output B select Input8
PORT 31	Output C select Input1
PORT 32	Output C select Input2
PORT 33	Output C select Input3
PORT 34	Output C select Input4
PORT 35	Output C select Input5
PORT 36	Output C select Input6
PORT 37	Output C select Input7
PORT 38	Output C select Input8
PORT 41	Output D select Input1
PORT 42	Output D select Input2
PORT 43	Output D select Input3
PORT 44	Output D select Input4
PORT 45	Output D select Input5
PORT 46	Output D select Input6

PORT 47	Output D select Input7
PORT 48	Output D select Input8
PORT 51	Output E select Input1
PORT 52	Output E select Input2
PORT 53	Output E select Input3
PORT 54	Output E select Input4
PORT 55	Output E select Input5
PORT 56	Output E select Input6
PORT 57	Output E select Input7
PORT 58	Output E select Input8
PORT 61	Output F select Input1
PORT 62	Output F select Input2
PORT 63	Output F select Input3
PORT 64	Output F select Input4
PORT 65	Output F select Input5
PORT 66	Output F select Input6
PORT 67	Output F select Input7
PORT 68	Output F select Input8
PORT 71	Output G select Input1
PORT 72	Output G select Input2
PORT 73	Output G select Input3
PORT 74	Output G select Input4
PORT 75	Output G select Input5
PORT 76	Output G select Input6
PORT 77	Output G select Input7
PORT 78	Output G select Input8
PORT 81	Output H select Input1
PORT 82	Output H select Input2
PORT 83	Output H select Input3
PORT 84	Output H select Input4
PORT 85	Output H select Input5
PORT 86	Output H select Input6
PORT 87	Output H select Input7
PORT 88	Output H select Input8

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