

spatz

HDMI-GIGALAN-TX HDMI-GIGALAN-RX



• **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:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through module openings or empty slots, as you may damage parts.
- Do not attach the power supply cabling to building surfaces.
- Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.
- 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>VR0</i>	<i>20110330</i>	<i>Preliminary Release</i>

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1. Introduction

SPATZ HDMI-GIGALAN is another product for transmitting HDMI or DVI over IP networks or extending these signals over a single UTP cable (CAT5e/6/7). The system is using 1000BaseT technology so any structured cabling that has been approved for Gigabit Networks will work for the HDMI-GIGALAN system. Due to a highly integrated ASIC we can offer HDMI over IP in a cost effective way for Real time video.

Compression and Latency

The transmitter works with a special compression technology that creates fixed data stream of 120 Mbps. The system works with an adaptive motion detection which results in a very high quality for still pictures and an extreme low latency of less than 3ms. If your signal contains motion the system will apply a multi stage prefiltering which will show up as slighty visible compression artefacts. We recommend to test the system with motion video before specifying for such an application.

The image quality of typical PC signal up to 1920 x 1200 is exceptional and very difficult to tell apart from a direct connection. We therefore think that this product is well suited for digital signage of any kind or distributing of content with little motion with the advantage of big distances at very low system cost.

The HDMI-GIGALAN works best with GIGABIT switches. However they have the ability to detect the network speed and can reduce the transmission rate for 100BaseT equipment.

The proprietary network signal can only be decoded by the HDMI-GIGALAN-RX and not by any Software decoders or media clients.

Point to Point configuration

The HDMI-GIGALAN-TX and HDMI-GIGALAN-RX are using the Multicast protocol, which means that units with same multicast addresses can join this group and communicate with each other. This technology is vastly reducing the network load, as only one datastream is created independently of the amount of recipients. If you would like to use the HDMI-GIGALAN on existing networks or switchers they need to support IPv6 or IPv4 and IGMP or CGMP (cisco) protocol. The multicast address room is 224.0.0.0 to 239.255.255.255.

If you intend to use unmanaged switches you have to adjust the transmitters Dip Switches to different addresses. You can have up to 16 transmitters and an unlimited amount of receivers in an unmanaged setup.

Unmanaged networks will not allow dynamic switching only a changing the multicast address with the DIP-switches will create a new routing. You can however create virtual paths with this technique if you do not need any dynamic changes.

Point to Multi Point configuration/DYNAMIC MATRIX Routing

This setup is the right choice for reconfiguring the connections of RX and TX units. With a managed switch all transmitters and receivers would have the same DIP switch setup. They are logically separated by creating a VLAN for each TX unit. Any RX that joins this VLAN will connect automatically to the one TX source there. This method allows the creation of very large distributed matrices at low system cost.

Typically managed switches can be controlled by RS-232 commands or via Telnet commands over one port. So you can create your own app or GUI to control the switch.

2. Applications

- HDMI, USB, RS-232 & IR Extender
- Broadcasting system over single CAT5e/6
- Long distance data sending with cascade
- Matrix network system
- System control over RS-232 and equipment control over IR
- KVM control

3. EDID LEARNING

The HDMI-GIGA-LAN can learn the EDID from the used display and transfer it to the TX device for the source. This assures that there is a controlled EDID table that is representing the capabilities of the used display(s).

To learn the EDID in the system, connect TX and RX device directly.

Connect the sink to the RX device and then HOLD the VIDEO button when powering the RX device until the Power LED starts flashing.

You can now release the VIDEO button the system will reboot and the TX device will now hold the learned EDID until you reprogram it.

If you want only SingleEDID (e.g. 1080p) to be present in the TX device we recommend to use the HDMIFIX as the sink device and learn the SingleEDID from our EDID emulator

4. System Requirements

- Input HDMI and or USB source equipment such as DVD, Blu-Ray player and or PC/Notebook with connection cables.
- Output display such as HD TV, monitor and active speaker or amplifier with connection cables.
- CAT5e/6 cable up to 100Ms in between of transmitter and receiver.

5. Features

- HDMI v1.2 and HDCP v1.1 compliant
- Support USB 2.0 high-speed devices
- Operate with USB 2.0 high speed host controllers
- True plug and play without any driver installation required
- Display and control of the host device and source equipment
- Save and share data into a separate room
- Tested CAT5 cable distance of up to 100 meters or cascade up to as long it require or link up to 16 pairs for matrix system
- Supports digital display output resolution up to 1920 x 1080@60Hz & WUXGA
- Automatic display mode detection and DDC synchronization
- Simple set up with easy to use
- LED indicators for easy viewing
- Supports Point to Point, Point to Multipoint and Multipoint to Multipoint

5.1 TESTED SWITCHES

Dell PowerConnect 5400 Series (5424, 5448)

Dell PowerConnect 6200 Series (6224, 6248)

Cisco Catalyst 2960 Gigabit

Netgear 7000 Series V2 (GSM7224, GSM7228PS, GSM7248, GSM7252PS)

Pakedge SW24-GBM

HP Procurve

6. Specifications

Transmitter

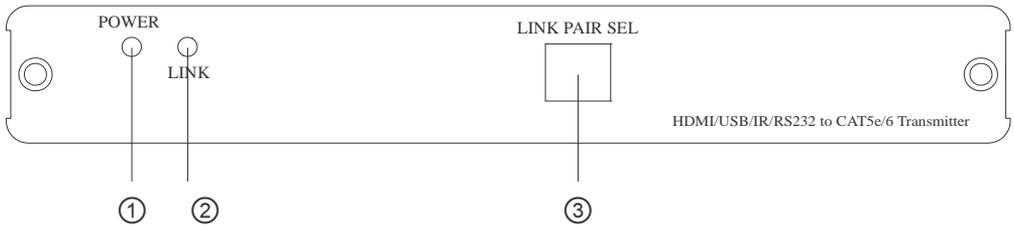
Input Port	1 x USB (B type) 1 x HDMI 1 x IR Blaster 1 x RS-232
Output Port	1 x RJ45

Receiver

Input Port	1 x RJ45
Output Ports	4 x USB (A type) 1 x HDMI 1 x RS-232 1 x IR Receiver 1 x 3.5Ø Audio In 1 x 3.5Ø Audio Out
ESD Protection	Human body model: $\pm 10\text{kV}$ (air-gap discharge) $\pm 6\text{kV}$ (contact discharge)
Power Supply	5V / 2.6A Tx 5V / 3A Rx (US/EU standards, CE/FCC/UL certified)
Dimensions (mm)	102 (W) x 95 (D) x 25 (H) / each
Weight(g)	214 / Transmitter, 220 / Receiver
Chassis Material	Aluminum
Silkscreen Color	Black
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Power Consumption	5W / Transmitter, 12W / Receiver
Relative Humidity	20~90% RH (non condensing)

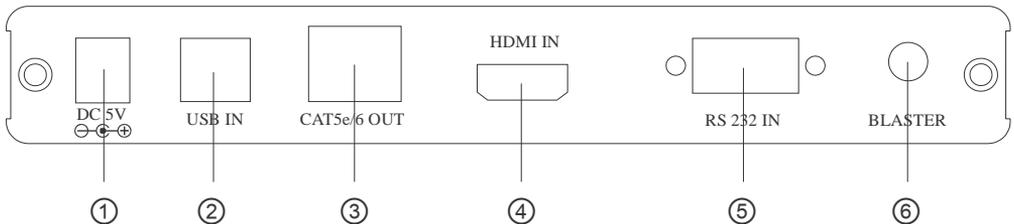
7. Operation Controls and Functions

7.1 Transmitter's Front Panel



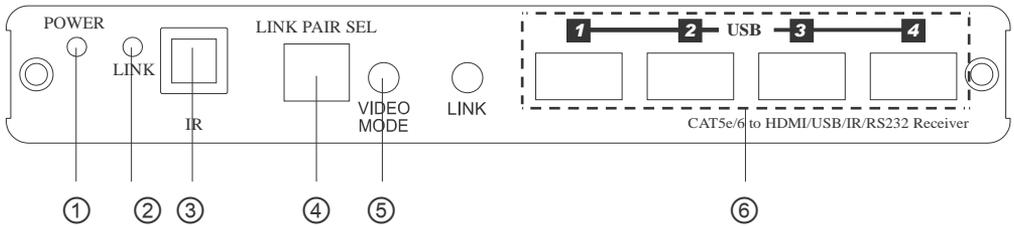
- ① Power LED: The red LED will illuminate when the device is connected with power.
- ② Link LED: The LED red will illuminate when the device has received input source single and output display's data.
- ③ LINK PAIR SELECT: This dip switch allows user with matrix setting for link up to 16 pairs of the devices with single IP router. Each pair must have the same dip switch setting in order to pair to the right device setting. The factory default setting is at 0000.

7.2 Transmitter's Rear Panel



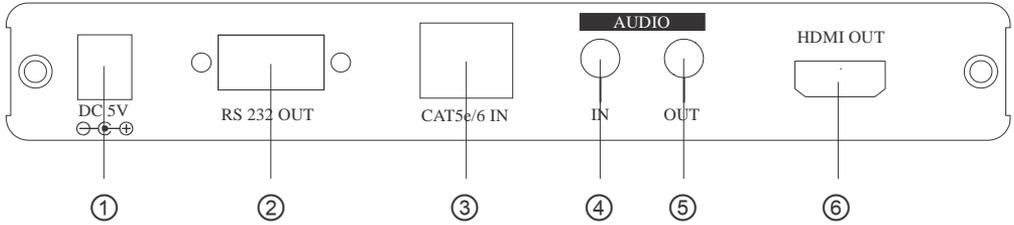
- ① DC 5V: Plug the 5V/2.6A DC power supply into the unit and connect the adaptor to AC wall outlet. Power LED will illuminate when the power is on.
- ② USB IN: This slot is to connect with PC/Notebook for input source signal with USB B type cable.
- ③ CAT5e/6 OUT: This slot is to connect with CAT5e/6 cable with receiver side's CAT5e/6 input.
- ④ HDMI IN: This slot is to connect with input source such as DVD or Blu-Ray player with connection cable.
- ⑤ RS 232 IN: This slot is to connect with D-Sub 9pin female null moden cable from PC's system for controlling both the input source and output display over RS-232.
- ⑥ IR BLASTER: This slot is to connect with IR blaster cable included in the package for IR signal sending and controlling the HDMI input source equipment.

7.3 Receiver's Front Panel



- ① Power LED: The red LED will illuminate when the device is connected with power.
- ② Link LED: The LED red will illuminate when the device has received output display's single and input source's data.
- ③ IR: receiver: This IR receiver can accept IR signal of the HDMI input source device with frequency between 20~60Hz and can send the signal over CAT5e/6 to transmitter side to control the input source equipment.
- ④ LINK PAIR SELECT: This dip switch allows user with matrix setting for link up to 16 pairs of the devices with single IP router. Each pair must have the same dip switch setting in order to pair to the right device setting. The factory default setting is at 0000.
You can create multiple groups (upt to 16) consisting of one TX and an unlimited numbers of RX that are using the same LAN. So this is perfect for fixed routed installs for unmanaged IP switches.
- ⑤ VIDEO MODE: Press this button to switch in between the video and graphic mode. The OSD will display your selection every time when the button is pressed.
- ⑥ LINK button: Press this button once or twice to allow the receiver to be link up or unlink with the transmitter and the OSD will show "Starting USB" or "Stopping USB" on the HDMI output display.
To connect a single transmitter to the desired RX, press the LINK button for 3sec to get the host control of USB on the HDMIGIGALAN-RX.
The HDMIGIGALAN can only link one USB connection at a time. So only one pair of TX and RX can communicate over USB. If there are more than one receiver linked at one TX only the RX that has been linked will make an USB connection.
- ⑦ USB 1~4: These slots are for users to connect with keyboard, mouse, HDD, USB flash drive and...etc. for USB hub function and KVM usage.

7.4 Receiver's Rear Panel



- ① DC 5V: Plug the 5V/3A DC power supply into the unit and connect the adaptor to AC wall outlet. Power LED will illuminate when the power is on.
- ② RS 232 OUT: This slot is to connect with D-Sub 9pin female null moden cable from PC's system for controlling both the input source and output display over RS-232.
- ③ CAT5e/6 IN: This slot is to connect with CAT5e/6 cable with transmitter side's CAT5e/6 output
- ④ AUDIO IN: This slot is for extra audio input source signal to be connected with 3.5Ø phone jack cable.
- ⑤ AUDIO OUT: This slot is for external audio output equipment to be connected with active speaker and connection cable.
- ⑥ HDMI OUT: This slot is to connect with output display such as HD TV or monitor with connection cable.

8. D-Sub 9 Pin Definitions

Pin	Define
1	N/C
2	RX
3	TX
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

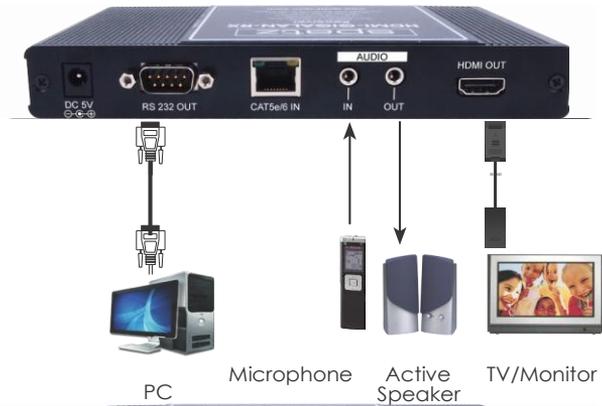
- * RS-232 transmission format:
 Baud Rate: 115200bps
 Data Bit: 8 bits
 Parity: None
 Stop Bit: 1 bit
 Flow Control: None

9. Connection and Installation

Transmitter's Rear Panel



Receiver's Rear Panel



Receiver's Front Panel



