BZBGEAR®
Amplify Your World™

BG-AVTPG-MINI-SE

4K/1080P HDMI Signal Test Generator and EDID/HDCP Emulator

User Manual

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Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-AVTPG-MINI-SE is a compact HDMI signal generator and display emulator designed for field testing, troubleshooting, and validation of HDMI signal integrity and HDCP behavior. It combines two essential functions in a single portable tool: a signal generator capable of outputting multiple test patterns up to 4K@60Hz 4:4:4, and a display emulator (signal analyzer) that can monitor HDMI source output characteristics such as 5V power, TMDS activity, and HDCP version. This makes it particularly useful for AV installers and technicians verifying system compatibility, diagnosing handshake issues, or confirming signal formats in real-world installations.

In generator mode, the device outputs selectable HDMI resolutions and HDCP configurations via a 4-pin DIP switch, supporting 4K@60Hz (4:4:4 or 4:2:0), 4K@30Hz 4:4:4, and 1080p@60Hz, along with HDCP OFF, 1.4, or 2.2 test patterns. In emulator mode, it passively analyzes incoming HDMI signals through its HDMI IN port, using LED indicators to show signal presence and HDCP status in real time. The SIG and HDCP LEDs provide immediate visual feedback for signal detection and encryption state, while USB power ensures stable operation in generator mode or optional power support in analyzer mode. This dual-function design makes the unit a practical, fast diagnostic tool for HDMI system commissioning and troubleshooting.

Features

- **Dual Function Operation:** Works as both an HDMI signal generator and a display emulator (signal analyzer) for testing and troubleshooting HDMI systems.
- **4K Video Signal Support:** Generates selectable HDMI test signals up to 4K@60Hz 4:4:4, including 4K@60Hz 4:2:0, 4K@30Hz 4:4:4, and 1080p@60Hz.
- **HDCP Testing Capability:** Supports HDCP OFF, HDCP 1.4, and HDCP 2.2 output modes for compatibility and encryption verification.
- **4-Pin DIP Switch Control:** Built-in DIP switch allows quick configuration of video resolution and HDCP test patterns without software.
- **Display Emulation Analysis:** As an emulator, detects HDMI source signal status including 5V power, TMDS activity, and HDCP version.
- **LED Status Indicators:** SIG and HDCP LEDs provide real-time visual feedback for signal presence and encryption status.
- **Compact Portable Design:** Lightweight mini chassis designed for field testing, installation, and on-site troubleshooting.
- **USB Powered Operation:** Powered via Micro-USB for stable operation in generator mode and optional power support in emulator mode.

Packing List

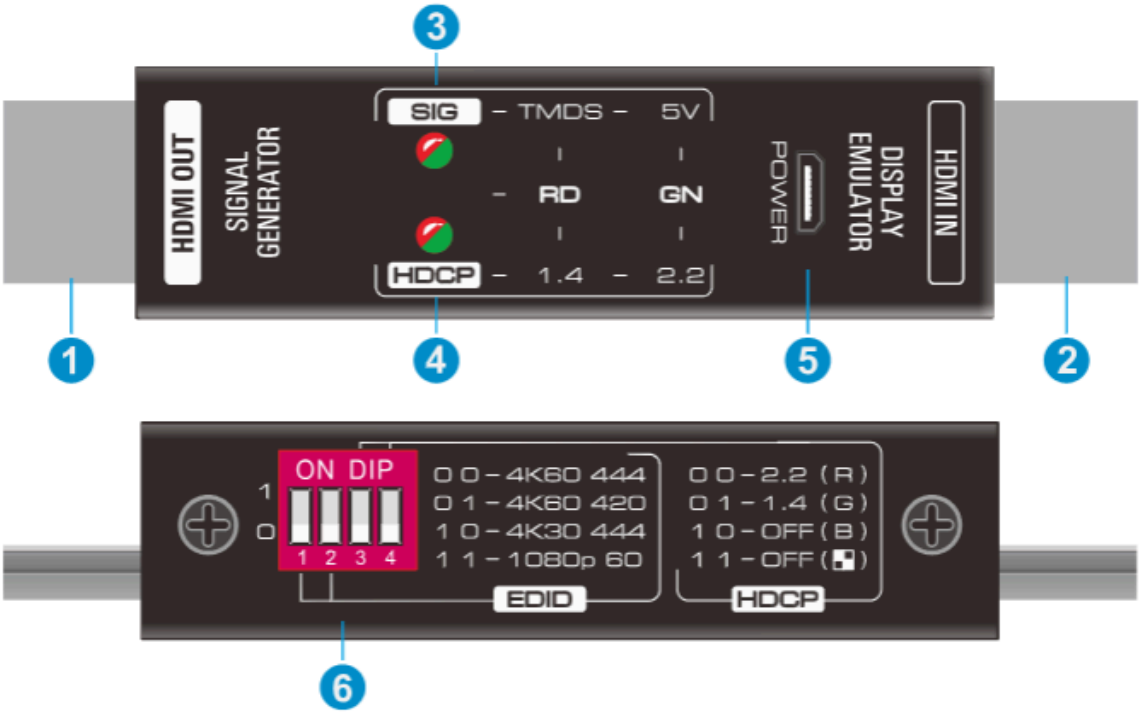
- 1× Mini HDMI Signal Generator / Display Emulator Unit
- 1× USB Power Cable (Micro-USB)
- 1× Carrying Cloth Bag
- 1× User Manual

Specifications

Technical Specifications	
Product Type	HDMI Signal Generator & Display Emulator (Signal Analyzer)
HDMI Version	HDMI 2.0
Input Interface	1× HDMI IN (19-pin Type-A male)
Output Interface	1× HDMI OUT (19-pin Type-A male)
Control Method	4-pin DIP switch
Video Output Resolutions	4K@60Hz 4:4:4, 4K@60Hz 4:2:0, 4K@30Hz 4:4:4, 1080p@60Hz
Max Input Resolution	Up to 4K@60Hz 4:4:4 8-bit
HDCP Support	HDCP 1.4, HDCP 2.2, HDCP OFF
Test Pattern Support	4 selectable HDCP test patterns
Status Indicators	SIG LED, HDCP LED
Power Input	5V DC (Micro-USB)
Power Consumption	≤2W (Max)
Operating Temperature	23°F to 131°F / -5°C to +55°C
Storage Temperature	-13°F to +158°F / -25°C to +70°C
Relative Humidity	10% to 90%, non-condensing
Dimensions (W×H×D)	2.95 × 0.87 × 0.75in [75 × 22 × 19 mm]
Net Weight	0.14 lb [65 g]

Operation Controls and Functions

Front and Rear Panel



1. **HDMI OUT (Output Port):**
   Used when the unit operates in signal generator mode. Connects to a display device to output generated HDMI test signals including resolution and HDCP test patterns selected via DIP switch.
2. **HDMI IN (Input Port):**
   Used when the unit operates in display emulator mode. Connects to an HDMI source device to analyze incoming signal status, including 5V power, TMDS activity, and HDCP version detection.
3. **SIG LED (Signal Status Indicator):**
   Indicates HDMI signal status depending on operating mode. In generator mode, it lights red when an HDMI signal is being output. In emulator mode, it shows green when only 5V is detected, red when both 5V and TMDS are active, and off when no signal is present.
4. **HDCP LED (HDCP Status Indicator):**
   Indicates HDCP status based on either DIP switch configuration (generator mode) or detected source (emulator mode). Green indicates HDCP 2.2, red indicates HDCP 1.4, and off indicates HDCP disabled or no HDCP signal.
5. **POWER (Micro-USB Port):**
   Provides 5V DC power input for generator mode operation. In emulator mode, the

device can be powered through the HDMI source; however, external USB power may be required if the source does not supply sufficient power, in which case LEDs may blink to indicate unstable power.

6. **DIP SWITCH (4-Pin Configuration Switch):**
   Used to configure video resolution and HDCP settings in generator mode. Switches 1–2 control EDID/output resolution selection, while switches 3–4 control HDCP test patterns.

- **Switch Logic:**
  "0" = Down position
  "1" = Up position

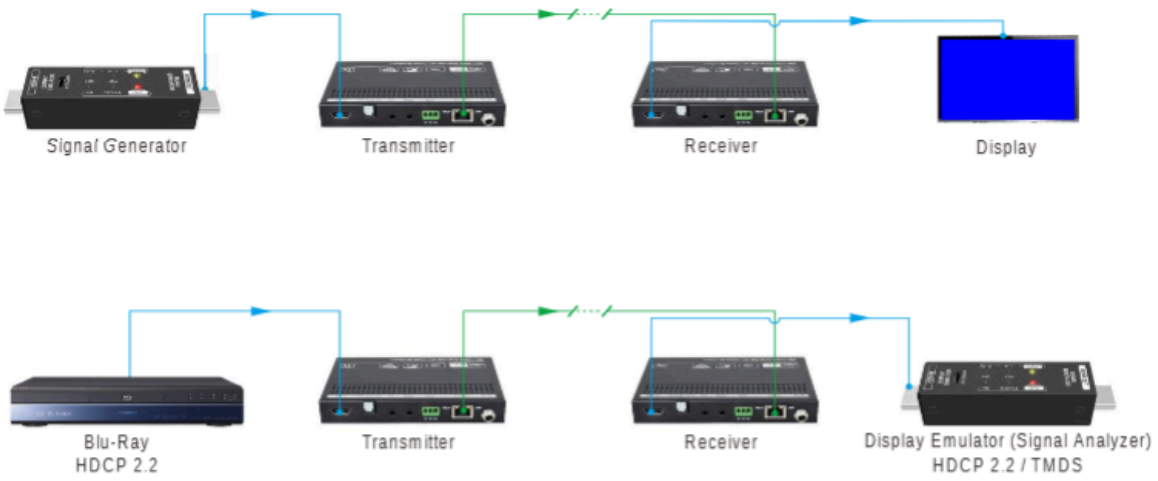
Resolution Selection (Switches 1–2):

- 00: 4K@60Hz 4:4:4
- 01: 4K@60Hz 4:2:0
- 10: 4K@30Hz 4:4:4
- 11: 1080p@60Hz / 3D

HDCP Test Selection (Switches 3–4):

- 00: HDCP 2.2 (Red Screen)
- 01: HDCP 1.4 (Green Screen)
- 10: HDCP OFF (Blue Screen)
- 11: HDCP OFF (Alternate White/Black Pattern)

Connection Diagram



Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player`s audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone	**Email**	**Live Chat**
1.888.499.9906	support@bzbgear.com	bzbgear.com

Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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