

PATTERN GENERATOR

PG-H1Z / V1Z / Y1Z



USER MANUAL V.2010PGZ100.00

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Chapter 1 Introduction

PG-H1Z/V1Z/Y1Z series are the test pattern generator designed to be a useful tool for the new generation of digital video/monitor products. They are simple versions to support up to 8 patterns for you to test and calibrate a digital video/monitor. Further, it also can also help you to improve the quality of digital video/monitor with side-by-side comparisons. Through the friendly interface and smart design, not only you can easy and quick to use the device but also you can reduce your test expenditure.

Caution

To avoid and minimize the risk of damage to the device, please pay attention to the safety instructions even though the device had been tested for conformance to safety requirements and certified for international using.

- Follow all instructions marked on the device during using.
- Do not attempt to maintain the device by yourself, any faults, please contact your vendor.
- Provide proper ventilation and air circulation and do not use near water.
- It is better to keep it in a dry environment.
- Only using the power adapter and connection cables that are supported with the device.
- Please use the Pile Alkaline and the working time for the battery is about 2~4.5hours.
- It is better to charge the battery when the battery power indicator becomes low.
- Do not use liquid or aerosol cleaners to clean the device.
- Always unplug the power to the device before cleaning.

1.1 Package Contents

- 1 pattern generator (PG-H1Z, PG-V1Z or PG-Y1Z)
- 1 power adapter DC 9V (for USA, UK or Europe DC plug.)
- 1 user manual
- 1 related cable (HDMI 1.2M cable for PG-H1Z, VGA 1.2M cable for PG-V1Z or YPbPr cable for PG-Y1Z)
- 1 9V Pile Alkaline

All packages have been checked carefully for their completeness and functionality before shipped. Please contact with your vendor if any items listed as above are missed or damaged.

1.2 Resolution

- Using to test and calibrate a monitor.
- Using to test and calibrate an image input devices.
- Using to test and maintain studio equipment as monitors, cabling and recording equipment.
- Using to test the arrangement of the circuit layout during the process of construction.

1.3 Features

- Intelligent and simple functionality.
- Support popular interface
 - HDMI 1.3, HDCP 1.2 compliant. (PG-H1Z)
 - HD-15 Female interface. (PG-V1Z)
 - YPbPr (RCAx3) interface. (PG-Y1Z)
- Support total 7 timings. (up to UXGA/1080P).
- Cost-down and simple interface and easy to use.
- Portable design, working time up to 2~4.5hours by inside Re-chargeable battery.
- Provide total 8 patterns, Include: Color bar, Gray, Grid, Block...

1.4 Specifications

1.4.1 PG-H1Z

Functions	Description
Output Connector	HDMI Type A
Pattern Selection Button	1
Resolution Selector Switch	1
Power / Battery Low LED	1
HDCP LED	1
Max. Resolution	1080p @ 60Hz (12bit)
Highest Pixel Frequency	225MHz
Cable Distance	5M (Max)
Power Adapter	DC 9V
Housing	Plastic
Dimensions (LxWxH)	132x87x27.5mm
Weight	150g
Pattern No.	8

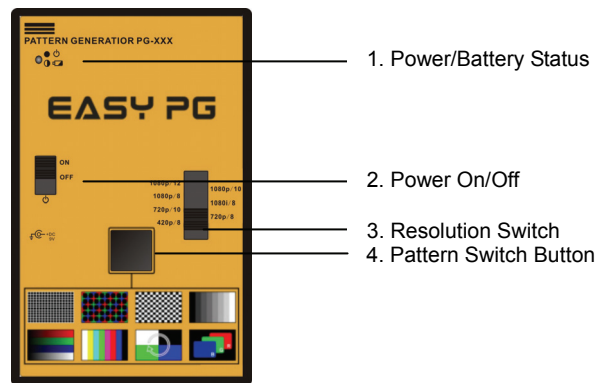
1.4.2 PG-V1Z

Functions	Description
Output Connector	HD-15 Female
Pattern Selection Button	1
Resolution Selector Switch	1
Power / Battery Low LED	1
Max. Resolution	1600 x 1200 @ 60Hz
Highest Pixel Frequency	162MHz
Cable Distance	5M (Max)
Power Adapter	DC 9V
Housing	Plastic
Dimensions (LxWxH)	136x87x27.5mm
Weight	150g
Pattern No.	8

1.4.3 PG-Y1Z

Functions	Description
Output Connector	YPbPr (RCAx3)
Pattern Selection Button	1
Resolution Selector Switch	1
Power / Battery Low LED	1
Max. Resolution	1080p @ 60 Hz
Highest Pixel Frequency	148.5MHz
Cable Distance	5M (Max)
Power Adapter	DC 9V
Housing	Plastic
Dimensions (LxWxH)	138x87x27.5mm
Weight	150g
Pattern No.	8

1.5 Front Panel



1. Power/Battery Status:

“●” “⏻” LED light → Power on.

“◐” “◑” LED Flash → The battery is in low voltage status.

☞ Using the 9V battery singly without a 9V transformer, the power LED status will flash when the voltage of battery go down to about Low Voltage. (That is indicating the power of batter will use up.)

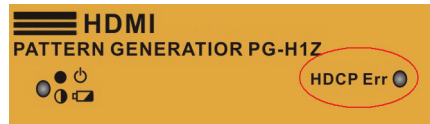
2. **Power On/Off:** Push the **Power SW** up to power on your device (The Power LED is light). Push the **Power SW** down to power off your device (The Power LED is dark)

3. **Resolution Switch:** Support you at least 7 kinds of resolution for choice. Please refer to “[Appendix A: Resolution.](#)”

4. **Pattern Switch Button:** Switch the **Pattern Mode** that you want to test. Please refer to “[Appendix B: Pattern Chart.](#)”

☞ After you press the Pattern Switch Button, the sequence of the pattern mode is from upper left to upper right then from bottom left to bottom right.

5. **HDCP Err:** Located on the upper right of **PG-H1Z** device.
The **HDCP Err LED** indicates the HDCP verification is succeeded or not. After the HDMI cable is connected to both PG-H1Z and Monitor/TV, the HDCP LED shows off (dark) that indicate the HDCP verification is successfully. IF the **HDCP LED** will on (light) to indicates the HDCP verification is fail.

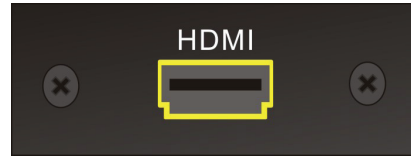


☞ The **HDCP Err** function only supports **PG-H1Z**.

1.6 Side Panel

1.6.1 PG-H1Z (HDMI Type A)

Use for HDMI 3M cable connector.

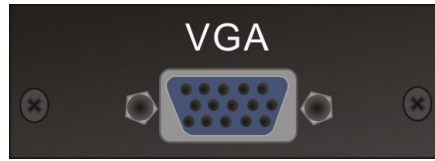


HDMI Type A Connector pin definition

Pin #	Signal	Pin #	Signal
1	TMDS Data2+	11	TMDS Clock Shield
2	TMDS Data2 Shield	12	TMDS Clock-
3	TMDS Data2-	13	NC
4	TMDS Data1+	14	NC
5	TMDS Data1 Shield	15	DDC-SCL
6	TMDS Data1-	16	DDC-SDA
7	TMDS Data0+	17	DDC-Ground
8	TMDS Data0 Shield	18	+5V Power
9	TMDS Data0-	19	Hot Plug Detect
10	TMDS Clock+		

1.6.2 PG-V1Z (HD-15 Female)

Use for Video cable connector.

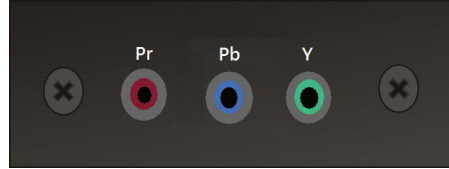


HD-15 Connector Pin Definition

Pin #	Signal	Pin #	Signal
1	Red video	11	NC
2	Green video	12	NC
3	Blue video	13	Horizontal sync
4	NC	14	Vertical sync
5	Ground	15	NC
6	Analog ground		
7	Analog ground		
8	Analog ground		
9	NC		
10	Ground		

1.6.3 PG-Y1Z (YPbPr_RCAx3)

Use for RCA cable connections. These connectors are labeled Y, Pb and Pr. These are HDTV-Component video connections to be connected to the Y, Pb and Pr connectors of a HDTV monitor or TV with component video input.



- **Y connector:** Y is for luminance signal drive a 1V peak-to peak signal into a 75-ohm load. The Y signal can be used alone in some cases, just like using luminance to test only of an NTSC, PAL or SECAM TV with its Composite input. The signal will be seen as a monochrome image, which is fine for most patterns that are monochrome.
- **Pb connector:** Pb is for the chrominance (color) signal drive 0.7V peak-to-peak signals into 75-ohm loads.
- **Pr connector:** Pr is for the chrominance (color) signal drive 0.7V peak-to-peak signals into 75-ohm loads.

1.6.4 Power Jack

Use for the DC 9V power adapter. The **Power Jack** is on the side of the device. The device supports 3 kinds of plugs for choice (for USA, UK and Europe DC plugs.)



Power Jack

Chapter 2 Connection

2.1 Plug

Caution

Please power off the digital monitor and the device before you begin the connection.

The device supports you up to 3 kinds of plugs (for USA, UK and Europe DC plugs for choice). Please depend on where the location is to select the suitable plug.



US Plug



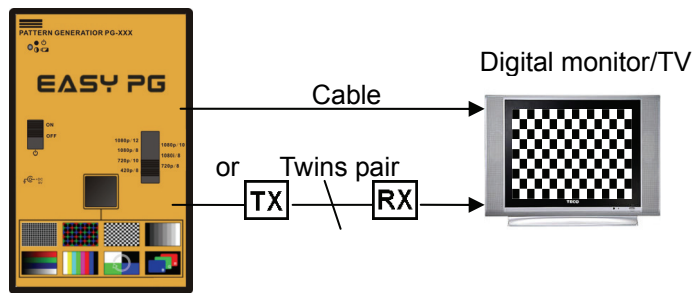
UK Plug



EU plug



2.2 Connect PG to Monitor



- Connect the attached DC adapter cable from your device to the power source (outlet).
- Connect the cable from your device to the Digital monitor/TV.
 - **PG-H1Z:** Please connect the HDMI 3M cable from PG-H1Z to the Digital monitor/TV
 - **PG-V1Z:** Please connect the VGA cable from PG-V1Z to the Digital monitor/TV.
 - **PG-Y1Z:** Please connect the RCA cable from PG-Y1Z to the Monitor/TV.
- Power on the Digital monitor/TV.
- Push the **Power SW** of your device to power on/off your device.

Caution

Please use the Pile Alkaline to the device.



Chapter 3 Troubleshooting

1. If there is no reaction when using the device, please ensure the following matters:
 - a. If it is unable to power on→there is a possibility of fault battery or inferior battery. Please connect it with the transformer.
 - b. If it is able to power on but there is no reaction→
 - Lower the resolution or change the resolution and vertical frequency.
 - Please ensure the compatibility the mode of the monitor.
2. What is the Pattern Generator's function?
 - a. Use to test and maintain studio equipment, such as monitor, cabling, and recording equipment.
 - b. For a TV engineer or technician wants to test and calibrate a DTV monitor during repair.
 - c. A home-theater user wants to get the best results out of the DTV equipment.
 - d. A studio installer wants to test cables and equipment so that can get the best effect.
 - e. For the DTV sets seller to show side-by-side comparisons of quality.
 - f. For teacher to train their students about the latest DTV quality test technologies.
 - g. To test a new DTV set whether compatibility with the ATSC standards.
3. When should I have to charge the battery?

We suggest you to charge the battery when the battery power indicator has become low; it is not appropriate to charge the battery when the battery is consumed thoroughly.

Appendix A: Resolution

A-1: PG-H1Z

NO	Resolution	Refresh Rate
1	1080p	60Hz (12 bit)
2	1080p	60Hz (10 bit)
3	1080p	60Hz (8 bit)
4	1080i	60Hz (8 bit)
5	720p	60Hz (10 bit)
6	720p	60Hz (8 bit)
7	480p	60Hz (8 bit)

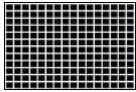
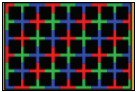
A-2: PG-V1Z

NO	Resolution	Refresh Rate
1	1920x1080	60Hz
2	1680x1050	60Hz
3	1600x1200	60Hz
4	1440x900	60Hz
5	1280x720	60Hz
6	1024x768	60Hz
7	800x600	60Hz

A-3: PG-Y1Z

NO	Resolution	Refresh Rate
1	1080p	60Hz
2	1080i	60Hz
3	720p	60Hz
4	576p	50Hz
5	480p	59Hz
6	576i	50Hz
7	480i	59Hz

Appendix B: Pattern Chart

1. GRID_16x12	2. COLOR_GRID	3. BLOCK_16x12	4. GRAY_8
			
5. COLORGRAY64	6. COLORBAR_1	7.DYNAMIC_WINDOW	8. DYNAMIC_RGB
			