PATTERN GENERATOR

USER MANUAL V1.0
VPG-H

Package Contents-

- 1 HDMI pattern generator VPG-H
- 1 power adapter DC 12V 1.25A
- 1 user manual
- 1 HDMI 1.2M cable

Any thing missed, please contact with your vendor.

Introduction

Through the use of portable HDMI pattern generator VPG-H, you are able to use 48 timings and 36 patterns, and operate it continuously for 6~8 hours after the battery has been fully charged or it can be operated by connecting with an external AC adaptor.

VPG-H is ideal for:

- TV / Monitor production line
- HDMI image input devices

Features

- Intelligent functionality.
- HDMI 1.3, HDCP 1.2 and DVI 1.0 compliant
- Support total 48 timings. (up to UXGA/1080p)
- Low cost.
- Single interface easily use.
- Portable design, working time up to 8 hours by inside Re-chargeable battery.
- Auto Power-off on battery mode.
- Provide total 36 patterns, Include: Color bar, Gray, Grid, Block…
- By 16x2 Character LCM and key buttons, easily control.
- Support audio 48KHz sample rate, 1KHz tone.

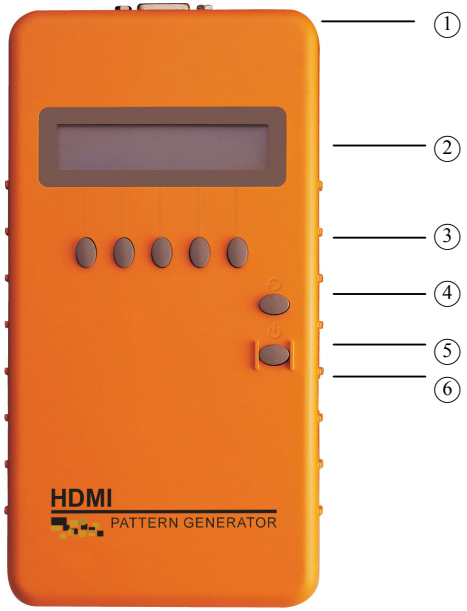
Specifications

Function	VPG-H
Output Connector	1 HDMI Type A
Select Switch	7
LCD Module: 16*2 Character Display	1
Max. Resolution	UXGA/1080p
Highest TMDS Frequency	225 MHz
Cable Distance	5M
Power Adapter (Min.)	DC 12V 1.25A
Housing	Plastic
Weight	398 g
Dimensions (LxWxH)	180x95x35 mm

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+		

FRONT VIEW



1. HDMI Output
2. LCD Module: 16*2 Character Display
3. Function Keys
4. “↩”: Return
5. “⏻”: Power On/Off
6. Power Jack

Installation

1. Insert the external AC adaptor into AC outlet, Connect the power cord to VPG-H for charging.
2. Switch off the monitor.
3. Connect the HDMI cable between the VPG-H and monitor.
4. Switch on the power of the monitor.
5. Press the VPG-H power key for more than 3 seconds to switch on/off the VPG-H.

Operation

A. Starting status

```
P01 640x480 @60
H 8     MENU
```

1. After pressing power On/Off key for 2~3 seconds, it will sound a long ”beep”.

2. Only valid for the corresponding key found below the LCM. After confirming the press, it will sound a short confirm “beep”.

3. Factory preset starting value:
   P01 640x480 @60
   P01 ➔ Pattern 01
   640x480 ➔ Resolution 640X480
   @60 ➔ Refresh rate 60Hz

4. The bottom left corner of LCM will display the current VPG-H status:
   a. HDMI mode
      DVI: VPG-H output signal is DVI
      H 8: VPG-H output signal is HDMI 8bit
      H10: VPG-H output signal is HDMI 10bit
      H12: VPG-H output signal is HDMI 12bit
   b. Video Type (Refer EIA/CEA-861B Standard)
      RGB: RGB
      Y444: YCbCr4:4:4
      Y422: YCbCr4:2:2
      If VPG-H is operated on DVI mode, then Video type is RGB (4:4:4 with 8-bits/component)
   c. HDCP:
      VPG-H has started the HDCP engine

B. Operation Guide:

a.

```
P01 640x480 @60
H 8     MENU
```

Start setting: Key ➔ “MENU” Switch

b. After pressing ”MENU” option➔

```
P01 640x480 @60
Tim Ptn Func Hky
```

1> Tim: (Timing selector)

```
640x480   @60
▲ ▼   ◄ ►   ↵
```

Note: The chosen option will blink
Key: “▲”: Increasing
“▼”: Decreasing
“◄”, ”►”: Choosing Resolution or Refresh rate
“↵ “: Output

```
640x480   @60
Output …
```

Under H12 mode, there is no output for the following timings:
1280x1024@85
1400x1050@75
1600x1200@60
1920x1200@60RB

2> Ptn: (Pattern selector)

```
P01 FLAT
▲ ▼          ↵
```

Note: Pattern Index option will blink
Key: “▲”: Increasing
“▼”: Decreasing
“↵ “: Output

P02 Blinking setup guide

```
P02 Blinking
▲ ▼    set    ↵
```

Set: Setting black and white blinking frequency (frames/number)

```
BLK:001   WHT:001
▲ ▼   ◄ ►   ↵
```

Note: The chosen option will blink
BLK: Black, WHT: White
Key: “▲”: Increasing
“▼”: Decreasing
“◄”, ”►”: Choosing BLK or WHT
“↵ “: Enter

3> Func: (Function Selector)

```
P01 640x480 @60
      Setup   Info
```

In Function Selector menu, there are two options of Setup and Info, under Setup option, it is provided with Mode, Video Type and HDCP Function for functional set up; and under Info option, it is provided with Timing Info, HTPLG Info and HDCP Info for observation of VPG-H status.

【Setup】

```
H 8    Y444    X
MOD   CSC HDCP ↵
```

MOD: Switching to HDMI mode DVI/H 8/H10/H12
CSC: Switching to Video Type RGB/Y444/Y422
HDCP: Enable/Disable HDCP
“↵ “: Output
The following timings do not support H12 mode:
1280x1024@85
1400x1050@75
1600x1200@60
1920x1200@60RB

【Info】

Timing Info
▲ ▼ ↵

Key: "▲", "▼": Choosing Timing Info, HTPLG Info or HDCP Info
"↵ ": Enter

a. Timing Info

Press "↵ " to enter Timing Info menu, VPG-H will display the current output's timing format on the LCM.

Pixel Clock:
▲ ▼ 148.5MHz

Under Timing Info, it features the following functions:
Pixel Clock
Horizontal Freq
Horizontal Total
Horizontal Active
Horizontal Front Porch
Horizontal Back Porch
Horizontal Sync Width
Horizontal Sync Polarity
Vertical Freq
Vertical Total
Vertical Active
Vertical Front Porch
Vertical Back Porch
Vertical Sync Width
Vertical Sync Polarity
and Video Code defined by EIA861B

b. Hot Plug Info

HTPLG Info
▲ ▼ ↵

Press "↵ " to enter HTPLG Info menu, VPG-H will display the status of Hot Plug Pin on HDMI connector on the LCM.

HTPLG Status
Not Detect

c. HDCP Info

HDCP Info
▲ ▼ ↵

Press "↵ " to enter HDCP Info menu, VPG-H will display the current HDCP STATUS on the LCM.

HDCP Status
No Rx Attached

The HDCP Status features the following functions:
a. Rx Attached/No Rx Attached
b. Read EDID
c. Transmit DVI/HDMI
d. Validate BKSV
e. Exchanges KSVs
f. Encryption
g. Ri = xxxx

4> Hky: (Hot key selector)

Hot Key page1

O O O X
R G B Rev ≫

O: Enable X: Disable
R: Red component output
G: Green component output
B: Blue component output
Rev: Pattern reverse
≫: Next page

Hot Key page2

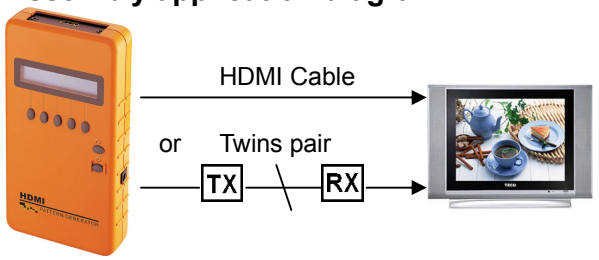
X O
AVM OUT ≪

O: Enable X: Disable
AVM: AV Mute
OUT: Video output ON/OFF
≪: Previous page

Note:

1. After purchasing and before using the VPG-H first time, please charge it continuously for more than 16 hours.
2. If there is no image while using the VPG-H, please ensure the following matters:
   a. If it is unable to switch on→there is a possibility of dead battery or inferior battery. Please connect it with the transformer.
   b. If it is able to switch on but there is no image→
      - Lower the resolution or change the resolution and vertical frequency.
      - Please ensure the compatibility of HDMI or HDCP mode of the monitor.
3. We suggest you to charge the battery when the battery power indicator has become low.
4. The VPG-H will save the last setting automatically.

Assembly application diagram:

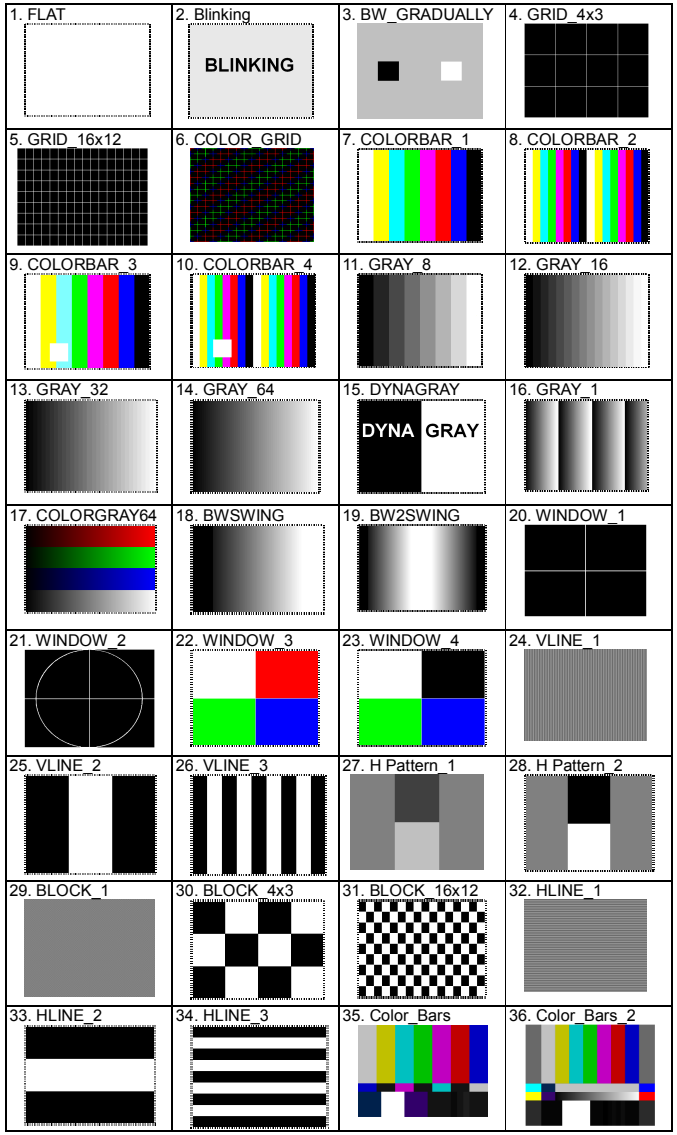


**VPG-HOutput signal specification chart:

NO	Resolution	Refresh Rate (Hz)	Pixel Freq (MHz)	Sync Polarity	
				Hor	Ver
1	640x350	85	31.5	P	N
2	640x400	85	31.5	N	P
3	640x480	60	25.175	N	N
4	640x480	72	31.5	N	N
5	640x480	75	31.5	N	N
6	640x480	85	36	N	N
7	720x400	85	35.5	N	P
8	800x600	56	36	P	P
9	800x600	60	40	P	P
10	800x600	72	50	P	P
11	800x600	75	49.5	P	P
12	800x600	85	56.25	P	P
13	848x480	60	33.75	P	P
14	1024x768	60	65	N	N
15	1024x768	70	75	N	N
16	1024x768	75	78.75	P	P
17	1024x768	85	94.5	P	P
18	1152x864	75	108	P	P
19	1280x768	60 RB	68.25	P	N
20	1280x768	60	79.5	N	P
21	1280x768	75	102.25	N	P
22	1280x768	85	117.5	N	P
23	1280x960	60	108	P	P
24	1280x960	85	148.5	P	P
25	1280x1024	60	108	P	P
26	1280x1024	75	135	P	P
27	1280x1024	85	157.5	P	P
28	1360x768	60	85.5	P	P
29	1400x1050	60 RB	101	P	N
30	1400x1050	60	121.75	N	P
31	1400x1050	75	156	N	P
32	1600x1200	60	162	P	P
33	1920x1200	60 RB	154	P	N
34	1280x800	60	83.5	N	P
35	1366x768	60	80	N	N
36	1440x900	60	106.5	N	P
37	1440x1050	60	125.25	N	N
38	1680x1050	60	146.25	N	P
39	1440x480i	59	27	N	N
40	1440x576i	50	27	N	N
41	720x480	59	27	N	N
42	720x576	50	27	N	N
43	1280x720	50	74.25	P	P
44	1280x720	60	74.25	P	P
45	1920x1080i	50	74.25	P	P
46	1920x1080i	60	74.25	P	P
47	1920x1080p	50	148.5	P	P
48	1920x1080p	60	148.5	P	P

RB: Reduced Blanking
P: Positive
N: Negative

**Pattern chart:



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