Dual-Output SDI/HD-SDI Video Pattern Generator

User Manual

(VPG-SDI)

Rev.0911

Made in Taiwan

Safety and Notice

The **VPG-SDI Dual-Output SDI/HD-SDI Video Pattern Generator** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **VPG-SDI** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not touch
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and install the unit on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Unplug the power before cleaning.

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Introduction

The **VPG-SDI Dual-Output SDI/HD-SDI Video Pattern Generator** is an advanced SDI pattern generator with multi-format (HD/SD) and multi-pattern support. Besides still and moving video test patterns, other features such as audio (SMPTE-291M) are also provided. VPG-SDI can support up to 8 channel AES compliant audio with 48KHz sample rate. Another attractive feature of VPG-SDI comes from bypassing HDMI input and allows users with more testing patterns for connected display or treats VPG-SDI as an advanced HDMI to SDI converter. With portable size, VPG-SDI is equipped four buttons and LCM screen to ease the control. This device provides a cost effective way to calibrate and test SDI enable video devices and displays.

Features

- **Supported output resolution**
  NTSC 525@60, PAL 625@50, 720p@23.98, 720p@24, 720p@25, 720@29.94, 720p@30, 720p@50,720p@59.94, 720p@60, 1080i@50, 1080i@59.94, 1080i@60, 1080p@23.97, 1080p@24, 1080p@25, 1080p@29.97, 1080p@30
  Bit Rate: 1.485 Gbps, 1.4835 Gbps, 270 Mbps
  Resolution: 10bit

- **Video Patterns**
  100% Color Bars, Borderline, Random Noise, Check Field, Black, Vertical Lines, Black / White alternate fields, Full Grey / Full White, Black to White Gradient, Random Generator for all still patterns, moving squares White noise, Inverse effect with still pattern, Scrolling Title (see Appendix for illustrations)

- **Save Settings to Memory Option**

- **ANC Data:** EDH (RP-165), SMPTE 352M, SMPTE291M

- **Control:** LCM & Panel Buttons

- **Video Output:** Dual SDI Output

Specifications & Package Contents

Technical		VPG-SDI
Role of usage		Pattern generator
SDI standards		SDI / HD-SDI
Auto SDI rate detection		Yes
Supported protocols		SMPTE 259M (270Mbps & 360Mbps) SMPTE 292M / HDTV (1.485Gbps & 1.485 / 1.001Gbps)
Video bandwidth		1.485Gbps
Data rates		143 / 270 / 1483 / 1485 Mbps
Video support		[HD] 720p50/59.94/60, 1080p24/30, 1035i50/59.94/60, 1080i50/59.94/60 [SD] NTSC@59.94Hz, PAL@50Hz
SDI signal type		SMPTE-292M, SMPTE-259M
HDMI bypass		Yes
Output impedance		75Ω
Cable equalization / transmission		[HD-SDI] up to 150m (500ft) [SD-SDI] up to 300m (1000ft)
Audio support		Yes
PCB Stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]
Input		None
Output		2x BNC [SDI]
BNC connector		75Ω interlocking socket
HDMI connector		Type A [19-pin female]
[HD] Eye pattern characteristics		Amplitude: Within 800mV <10% Rise overshoot: Less than 2% Fall overshoot: Less than 2% Long time jitter <1.0μ Timing jitter <1.0μ Alignment jitter <0.2μ
Mechanical		**VPG-SDI**
Housing		Metal enclosure
Dimensions [L x W x H]	Model	160 x 110 x 20mm [6.3” x 4.3” x 0.8”]
	Package	330 x 200 x 95mm [1’1” x 7.9” x 3.7”]
	Carton	495 x 440 x 380mm [1’7” x 1’5” x 1’3”]
Weight	Model	325g [11oz]
	Package	**g [lbs]**
Fixedness		Interlocking power supply
Power supply		5V 4A DC
Power consumption		10 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]
Package Contents		1x VPG-SDI 1x 5V power supply unit 1x User manual

The measurement results are from Tektronix WFM-7120 with SDI through 1m (3.3ft) long Belden 1694A.

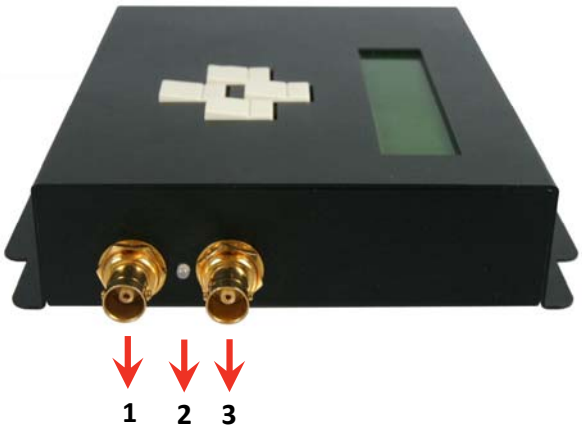
Menu Operation

Menu	Items	
01 Format	Resolution	NTSC / PAL / 720p / 1080p / 1080i
	Frequency	60Hz / 59.94Hz / 50Hz / 30Hz 29.97Hz / 25Hz / 24Hz / 23.98Hz
	Output	YCbCr 4:2:2
02 Video	Patterns	SMPTE Bar / 100% Bar Check Field 1 / Check Field 2 / Check Field 3 Gradient R1 / Gradient G1 / Gradient B1 Gradient R2 / Gradient G2 / Gradient B2 Gradient R3 / Gradient G3 / Gradient B3 Gradient R4 / Gradient G4 / Gradient B4 Red Level 1 / Red Level 2 Green Level 1 / Green Level 2 Blue Level 1 / Blue Level 2 100% Red / 100% Green / 100% Blue 100% White / 70% Gray / 40% Gray / Black Noise / Circle 1 / Circle 2 / Moire H Stripe R / H Stripe G / H Stripe B V Stripe R / V Stripe G / V Stripe B Chess 1 / Chess 2 / Sequence
	Text	Off / On-White / On-Black
	Timer	Off / On-W/B / On-B/W
03 Audio	Mode	Off / On
	Group	1+2 / 3+4
	Level	-6dB / -12dB / -18dB / -24dB -30dB / -36dB / -42dB / Silence / Random
	Mask	Off / CH 1234 / CH 1 / CH 2 / CH 3 / CH 4 CH 1+2 / CH 3+4
04 Motion	Motion	No Motion / Square 1 / Square 2 2 Squares / Square Inv
	Data Speed	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
05 ANC Data	SMPTE-352M	Off / On
	EDH	On / Off
06 System	Status	No Change / Factory / Now Save
	Version	V1.00

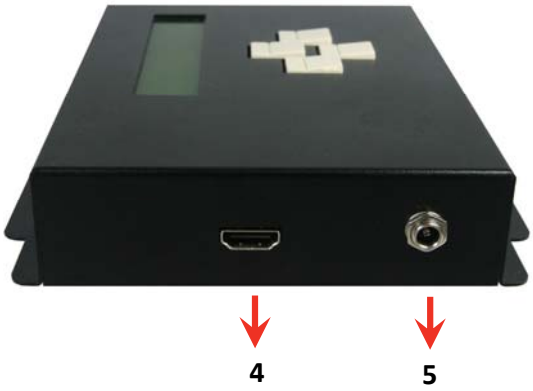
Top View

Button	Function
Menu	Trigger the menu operation
Enter	Enter the menu item
Up	Choose the last menu item
Down	Choose the next menu item

Side View



1. **SDI OUTPUT A:** Connect to a SDI device for SDI or HD-SDI signal output either from the chosen pattern or the converted HDMI source signal
2. **Lock LED:** showing if the audio/video signal existed or not
3. **SDI OUTPUT B:** Connect to a SDI device for SDI or HD-SDI signal output either from the chosen pattern or the converted HDMI source signal



4. **HDMI INPUT:** Plug in a HDMI cable to be linked to a HDMI source
5. **+5V DC:** Connect to a 5V DC power supply unit

Notice

In HDMI bypass mode, users must be aware of that the jitters coming from HDMI sources, such as DVD players, may be much higher than typical requirement according to SMPTE request on HD-SDI signals. This will result in SDI output with high jitters or even no SDI outputs!

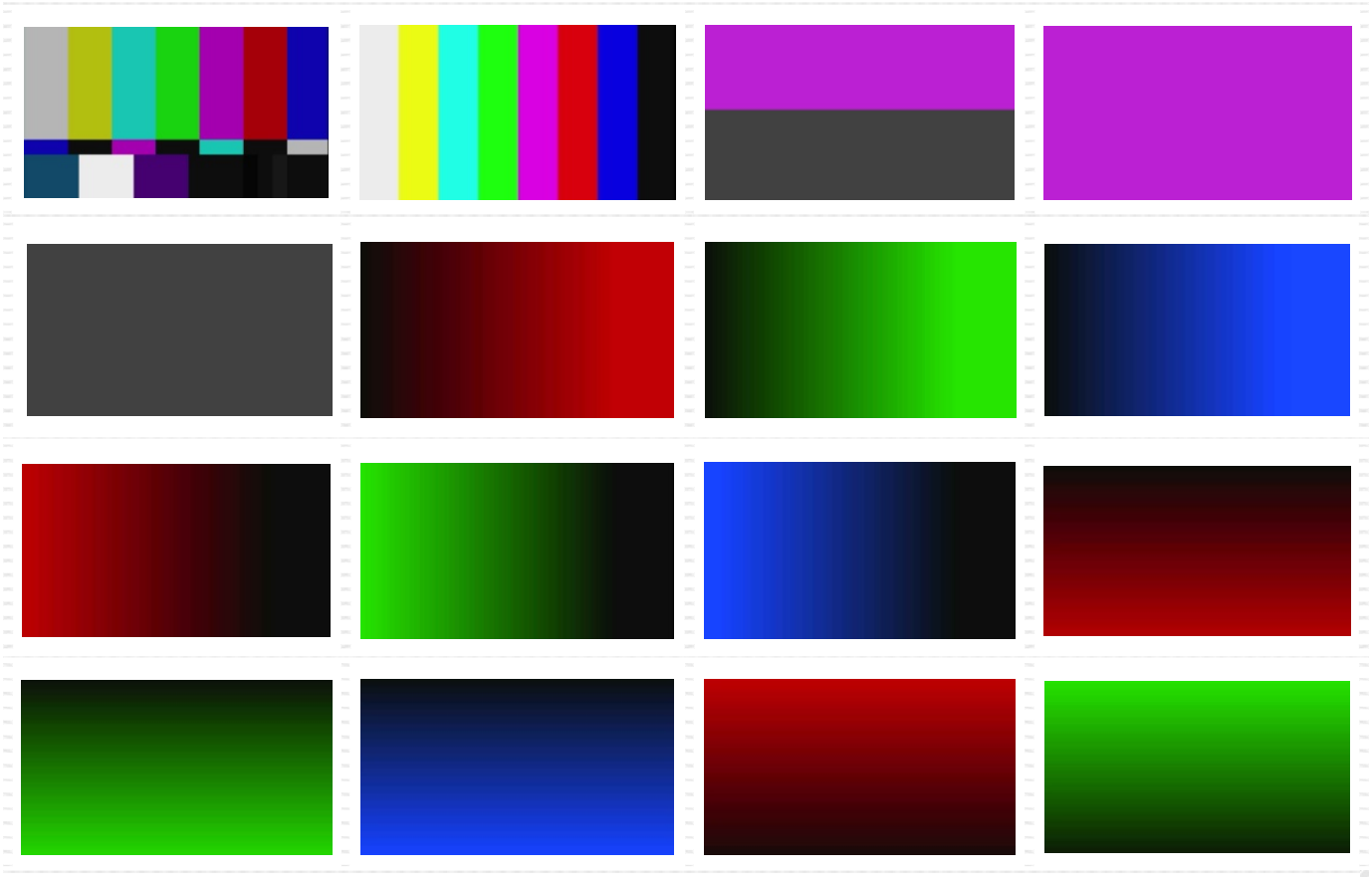
Appendix

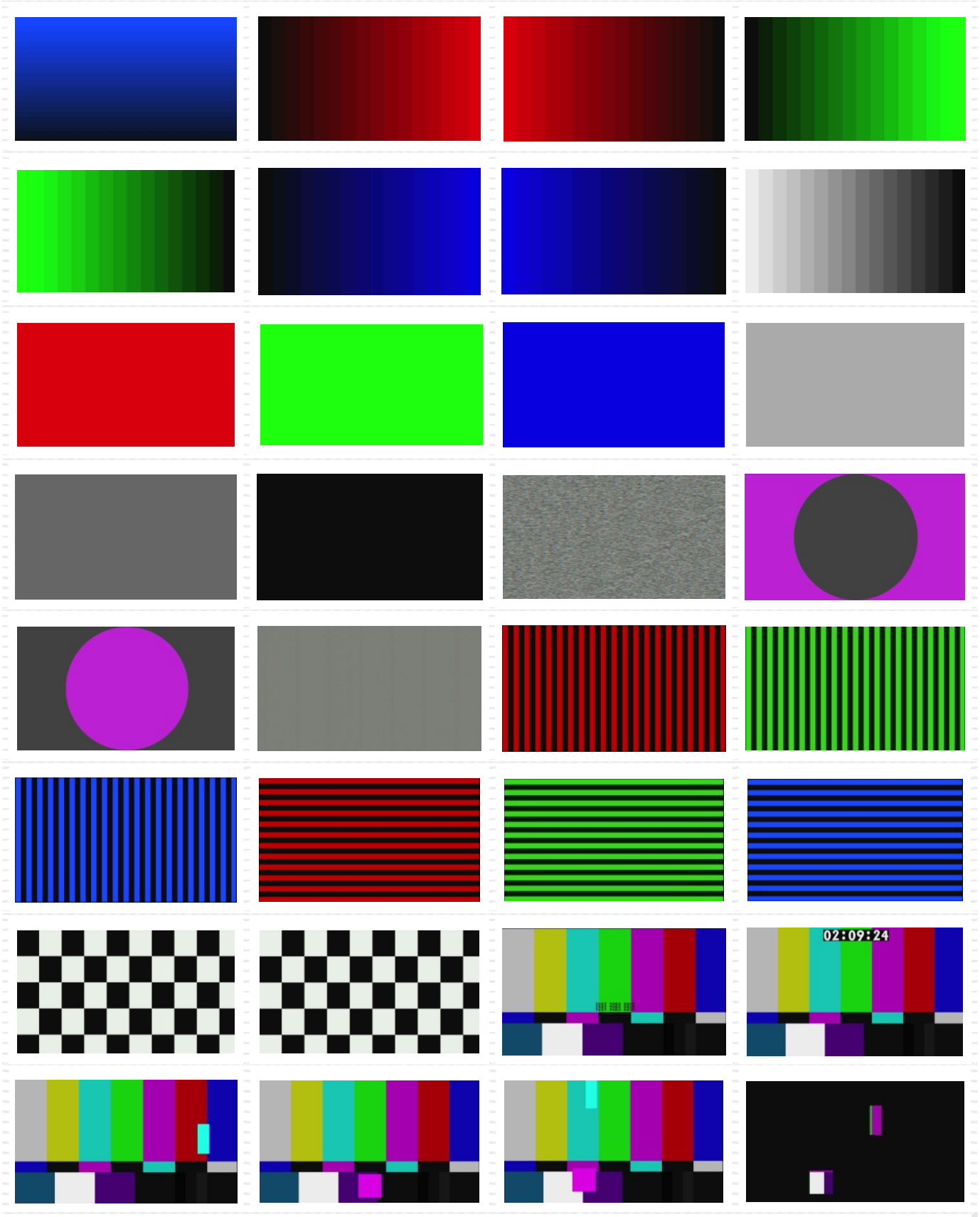
- Data Identification Word of Ancillary Data Packet

ANC Data	DID	SDID/DBN
352M	0x41	0x01
RP-165-EDH*	0xF4	0x00

* Data Type 1(SMPTE-291M)

- Built-in Video Patterns

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