3G/HD/SD-SDI Pattern Generator with Serial Control

P/N: AV-GM0993-S1

Safety and Notice

The **AV-GM0993-S1 3G/HD/SD-SDI Pattern Generator with Serial Control** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM0993-S1** 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 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 away the objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter, power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

The **AV-GM0993-S1 3G/HD/SD-SDI Pattern Generator with Serial Control** is an advanced SDI pattern generator with multi-format (3G/HD/SD) and multi-pattern support. Besides still and moving video test patterns, other features such as audio (SMPTE-291M) are also provided. AV-GM0993-S1 can support up to 8 channel AES compliant audio with 48KHz sample rate. Another attractive feature of AV-GM0993-S1 comes from bypassing HDMI input and allows users with more testing patterns for connected display or treats AV-GM0993-S1 as an advanced HDMI to SDI converter with 3G capability. With portable size, AV-GM0993-S1 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.

In order to create the accessibility for SDI system integrators, AV-GM0993-S1 is equipped the serial port thru mini-USB connector and the complete serial command sets are also provided for reference!

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, 1080p@50, 1080p@59.94, 1080p@60
  Bit Rate: 2.97 Gbps, 2.967 Gbps, 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**
  By LCM or panel buttons & serial command control
- **Video Output**
  Triple SDI output (SDI, HD-SDI, 3G-SDI)

Specifications & Package Contents

Model Name		AV-GM0993-S1	AV-GM0973-S1
Technical			
Role of usage		Pattern generator	
SDI standards		3G/HD/SD-SDI	
Auto SDI rate detection		Yes	
Supported protocols		SMPTE 259M (270Mbps / 360Mpbs) SMPTE 292M / HDTV (1.485 & 1.485/1.001Gbps) SMPTE 424/425M (2.97 & 2.97/1.001Gbps)	
Video bandwidth		2.97Gpbs	
Data rates		143 / 270 / 1483 / 1485 / 2967 / 2970 Mbps	
Video support		[3G] 1080p@50/59.94/60 (4:2:2) [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 / 259M / 424M	
HDMI bypass		Yes	
Output impedance		75Ω	
Cable (Belden 1694A) equalization / transmission		[3G-SDI] up to 60m (190ft) / [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		HDMI	HDMI + USB
Output		2x BNC [SDI]	
BNC connector		75Ω interlocking socket	
HDMI connector		Type A [19-pin female]	
USB connector		mini	
[HD] Eye pattern characteristics		Amplitude: Within 800mV <10% Rise overshoot: Less than 2% Fall overshoot: Less than 2%	Long time jitter <1.0 UI Timing jitter <1.0 UI Alignment jitter <0.2 UI
Mechanical		**AV-GM0993-S1**	**AV-GM0973-S1**
Housing		Metal enclosure	
Dimensions [L x W x H]	Model	150 x 190 x 32mm [5.9” x 7.5” x 1.3”]	
	Package	175 x 270 x 100mm [6.9” x 10.6” x 3.9”]	
	Carton	450 x 370 x 300mm [1’6” x 1’3” x 1’]	
Weight	Model	660g [1.5 lbs]	
	Package	1260g [2.8 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 AV-GM0993-S1	1x AV-GM0973-S1

	1x 5V power supply unit 1x User manual	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

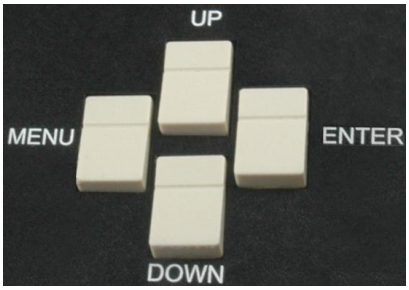
Menu	Items	
01 Format	Resolution	NTSC
		PAL
		720p
		1080p
		1080i
	Frequency	60
		59.94
		50
		30
		29.97
		25
		24
		23.98
	Output	YCbCr 422
02 Video	Patterns	SMPTE Bar
		100% Bar
		Check Field 1
		Check Field 2
		Check Field 3
		Gradient R1
		Gradient G1
		Gradient B1
		Gradient R2
		Gradient G2
		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

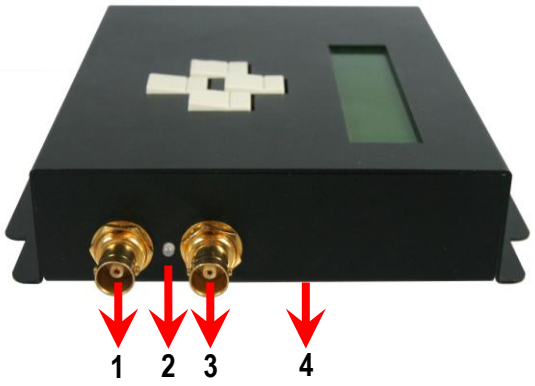
Panel Descriptions

Top View

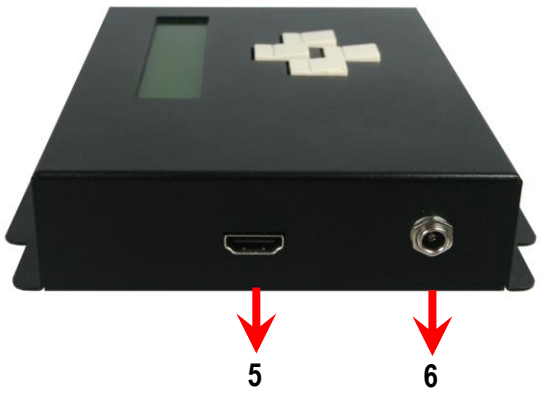


Button	Function
Menu	Trigger the menu operation
Enter	Enter the menu item
Up	Choose the last menu item
Down	Choose the next menu item

Side View



1. **SDI OUTPUT A:** Connect to a SDI device for SDI, HD-SDI, or 3G-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, HD-SDI, 3G-SDI signal output either from the chosen pattern or the converted HDMI source signal.
4. **Mini-USB**: Serial control port



5. **HDMI INPUT:** Plug in a HDMI cable to be linked to a HDMI source
6. **+5V DC:** Connect to a 5V DC power supply unit

A 4-pin DIP switch is used for user interface, and users can access this switch from the bottom of the unit.

Pin No.	1	2	3	4
ON (🡅)	Used for SMPTE352M	3G level B	Not in use	Update EDID
OFF (🡇)		3G level A	Not in use	Default EDID

Note

1. Factory default for 4-pin DIP switch: OFF-OFF-OFF-OFF [🡇-🡇-🡇-🡇]
2. In order to keep the compatibility of HDMI to most monitors, AV-GM0993-S1 features EDID learning ability. The operation is shown in the EDID learning section.

1. Turn off AV-GM0993-S1 and set the pin 4 of DIP switch of AV-GM0993-S1 to OFF [🡇].
2. Connect the HDTV to the HDMI port on the AV-GM0993-S1, and then turn on AV-GM0993-S1.
3. The Lock LED on the AV-GM0993-S1 will dim and light again, which indicates the EDID learning process is done.
4. Connect AV-GM0993-S1 to the HDMI source through a HDMI cable and enjoy the experience.

Notice

1. 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!

2. Due to the high frequency bandwidth and low jitter requirement of 3G-SDI signals, it is strongly recommended to use just one SDI OUTPUT with one 75 ohm.

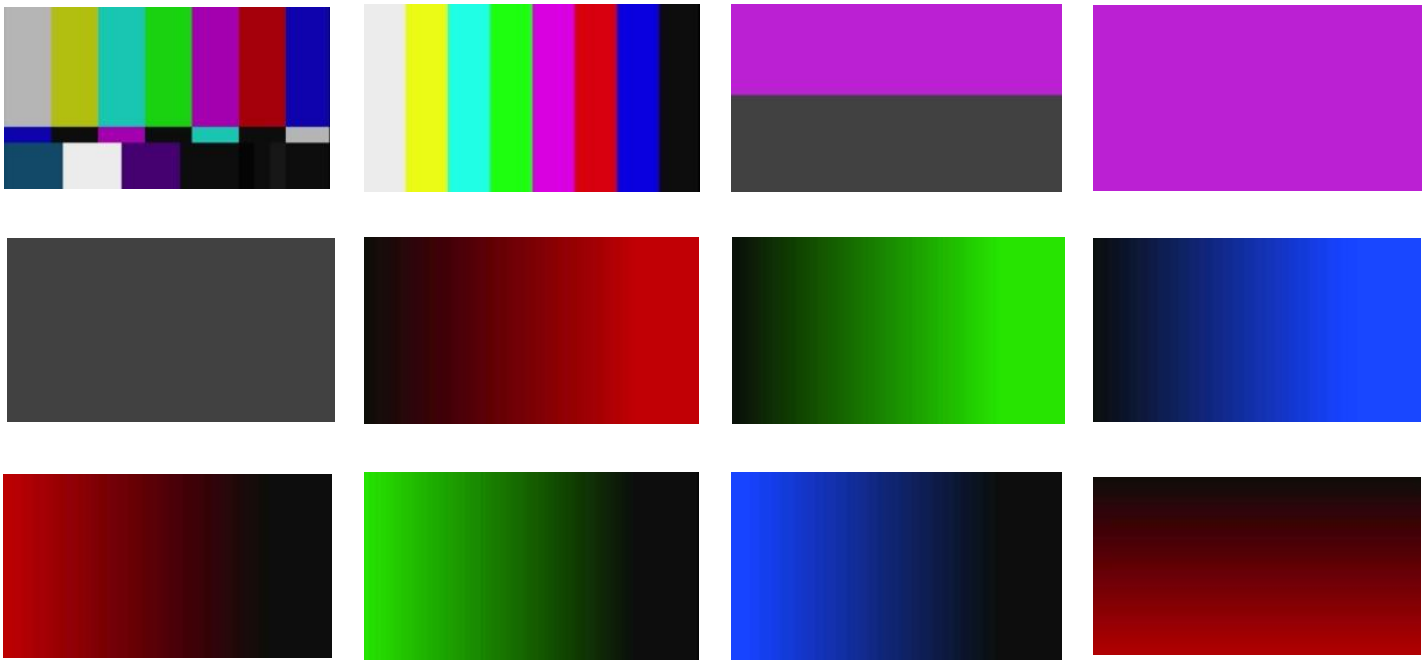
Appendix

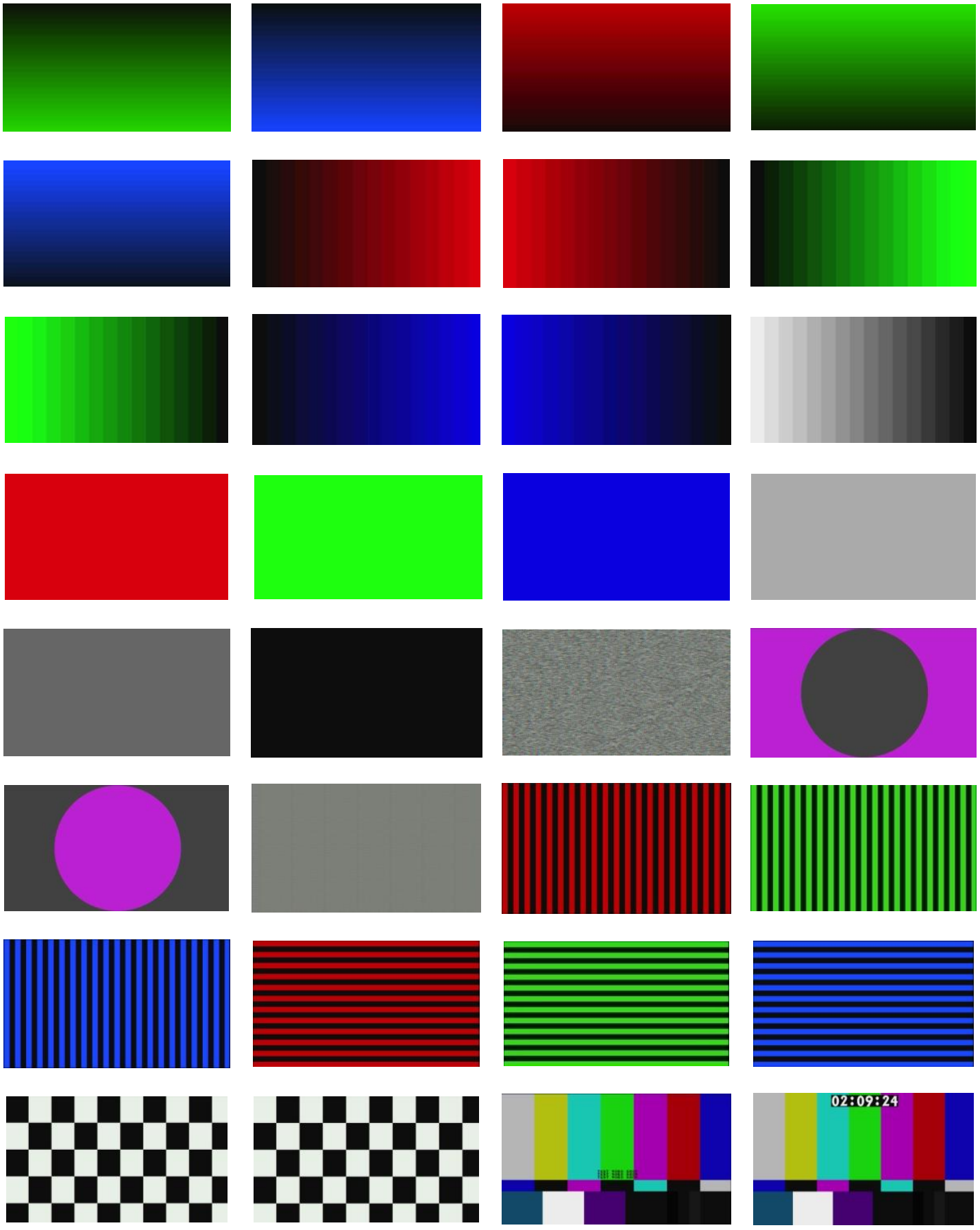
- Data Identification Word of Ancillary Data Packet

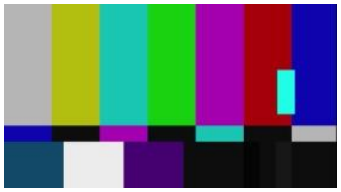
ANC Data	DID	SDID/DBN
352M	0x41	0x01
RP-165-EDH*	0xF4	0x00

* Data Type 1(SMPTE-291M)

- Built-in Video Patterns




02:09:24




Serial Command S

Set Format Resolution			
Function Description: Set Resolution			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x11	
6	Command Parameter 1	0x01	01 : 720p 02 : 1080i 03 : 1080p 04 : NTSC 05 : PAL

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command value is right NACK: 0x55 Command value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	

2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x11 0x01 0xe3 Acknowledgement: 0x03 0xaa 0xad			

Set Format Frequency			
Function Description: Set Frequency Frequency Support : 720p : 50Hz, 59.94Hz, 60Hz 1080i : 50Hz, 59.94Hz, 60Hz 1080p: 23.98Hz, 24Hz, 25Hz, 29.97Hz, 30Hz, 50Hz, 59.94Hz, 60Hz NTSC : 59.94Hz PAL : 50Hz			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x12	
6	Command Parameter 1	0x01	01 : 23.98 02 : 24 03 : 25 04 : 29.97 05 : 30 06 : 50 07 : 59.94 08 : 60

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			

0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	

Example
Command: 0x08 0x50 0x47 0x33 0xff 0x12 0x01 0xe4 Acknowledgement: 0x03 0xaa 0xad

Set Video Pattern			
Function Description: Set Pattern			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x21	
6	Command Parameter 1	0x01	01 : HDMI Bypass 02 : SMPTE Bar 03 : 100% Color Bar 04 : 75% Color Bar 05 : Check Field 06 : EQ 07 : PLL 08 : Grad Black->Red(H) 09 : Grad Black->Green(H) 0a : Grad Black->Blue(H) 0b : Grad Red->Black(H) 0c : Grad Green->Black(H) 0d : Grad Blue->Black(H) 0e : Grad Black->Red(V) 0f : Grad Black->Green(V) 10 : Grad Black->Blue(V) 11 : Grad Red->Black(V) 12 : Grad Green->Black(V) 13 : Grad Blue->Black(V) 14 : Red Level Black->Red 15 : Red Level Red->Black 16 : Grn Level Black->Green 17 : Grn Level Green->Black 18 : Blu Level Black->Blue 19 : Blu Level Blue->Black 1a : Gra Level White->Black

			1b : Gra Level Black->White 1c : 100% Red 1d : 100% Green 1e : 100% Blue 1f : 100% White 20 : 70% Gray 21 : 40% Gray 22 : Black 23 : Noise 24 : Circle 1 25 : Circle 2 26 : Moire 27 : V Stripe R 28 : V Stripe G 29 : V Stripe B 2a : H Stripe R 2b : H Stripe G 2c : H Stripe B 2d : Chess 1 2e : Chess 2 2f : Sequence

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x21 0x01 0xf3			

Acknowledgement: 0x03 0xaa 0xad

Set Video TEXT			
Function Description: Set TEXT			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x22	
6	Command Parameter 1	0x01	01 : OFF 02 : On/W 03 : On/B
7	Check Sum		BYTE CheckSum = 0; for(int i =0; i<n; i++) CheckSum += Byte(i);
Acknowledgement character			

0	ACK/NACK	0xaa/0x55	unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x22 0x01 0xf4 Acknowledgement: 0x03 0xaa 0xad			

Set Video Timer			
Function Description: Set Timer			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x23	
6	Command Parameter 1	0x01	01 : OFF 02 : On-W/B 03 : On-B/W

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x23 0x01 0xf5 Acknowledgement: 0x03 0xaa 0xad			

Set Audio Mode			
Function Description: Set Mode			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x31	
6	Command Parameter 1	0x01	01 : OFF 02 : On

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x31 0x01 0x03 Acknowledgement: 0x03 0xaa 0xad			

Set Audio Group			
Function Description: Set Group			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x32	
6	Command Parameter 1	0x01	01 : 1+2 02 : 3+4

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x32 0x01 0x04 Acknowledgement: 0x03 0xaa 0xad			

Set Audio Level			
Function Description: Set Level			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x33	
6	Command Parameter 1	0x01	01 : Random 02 : Silence 03 : -42dB 04 : -36dB 05 : -30dB 06 : -24dB 07 : -18dB 08 : -12dB 09 : -6dB

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x33 0x01 0x05 Acknowledgement: 0x03 0xaa 0xad			

Set Audio Mask			
Function Description: Set Mask			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x34	
6	Command Parameter 1	0x01	01 : Off 02 : CH 1 03 : CH 2 04 : CH 3 05 : CH 4 06 : CH 1+2 07 : CH 3+4 08 : CH 1+2+3+4

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum = chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x34 0x01 0x06 Acknowledgement:			

0x03 0xaa 0xad

Set Motion			
Function Description: Set Motion			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x41	
6	Command Parameter 1	0x01	01 : No Motion 02 : Square 1 03 : Square 2 04 : 2 Squares 05 : Square Inv

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x41 0x01 0x13 Acknowledgement: 0x03 0xaa 0xad			

Set Motion Speed			
Function Description: Set Speed			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x42	
6	Command Parameter 1	0x01	01 : 1 02 : 2 03 : 3 04 : 4 05 : 5 06 : 6 07 : 7 08 : 8

7	Check Sum		unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Acknowledgement character			
0	ACK/NACK	0xaa/0x55	ACK: 0xaa Command Value is right NACK: 0x55 Command Value is error.
Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x42 0x01 0x14 Acknowledgement:			

0x03 0xaa 0xad

Set ANC Data			
Function Description: Set SMPTE_352M On/Off			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Check Code 1	0x50	
2	Check Code 2	0x47	
3	Check Code 3	0x33	
4	Device ID	0xff	
5	Command ID	0x51	
6	Command Parameter 1	0x01	01 : Off 02 : On
7	Check Sum		BYTE CheckSum = 0; for(int i =0; i<n; i++) CheckSum += Byte(i);
Acknowledgement character			

0	ACK/NACK	0xaa/0x55	unsigned char chksum=0;
			for (int i=0; i<buf_size;++i){
			chksum += buf[i];
			if (chksum>0xff)
			chksum =
			chksum–0xff–1;}

Receive			
0	Command Length	0x03	
1	Acknowledgement	0xaa/0x55	
2	Check Sum	0xad/0x58	
Example			
Command: 0x08 0x50 0x47 0x33 0xff 0x51 0x01 0x23 Acknowledgement: 0x03 0xaa 0xad			

Limited Warranty

The SELLER warrants the **AV-GM0993-S1 3G/HD/SD-SDI Pattern Generator with Serial Control** to be free from defects in the material and workmanship for 3 years from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 3 years warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the **AV-GM0993-S1** features and specifications is subject to change without further notice.

Support

For more info or tech support

http://www.siig.com/support

April, 2018