

ABN 43 064 478 842

231 osborne avenue clayton south, vic 3169
 PO box 1548, clayton south, vic 3169
 t 03 9265 7400 f 03 9558 0875
 freecall 1800 680 680

www.tmgtestequipment.com.au

# Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

## **Complimentary Reference Material**

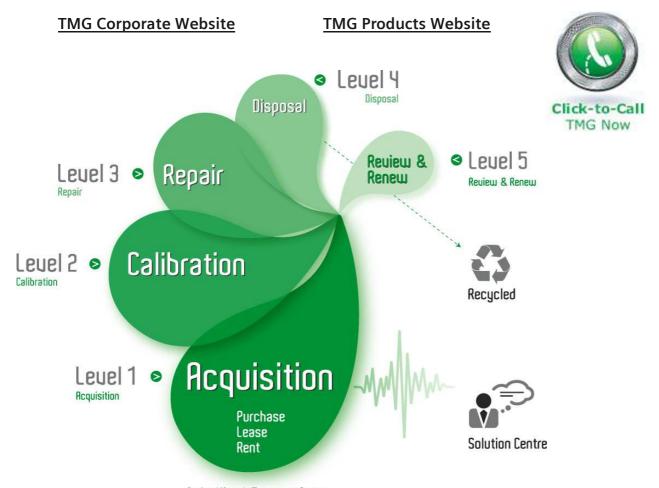
This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!



Product Lifecycle Management System

#### **Disclaimer:**

All trademarks appearing within this PDF are trademarks of their respective owners.





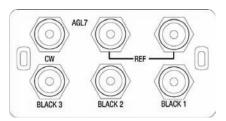


## Multiformat Video Generator

#### ► TG700



The TG700 is a multiformat, analog and digital, precision signal generation platform. Designed with the changing needs of the video industry in mind, the TG700 offers sync pulse generation and test signal generation for a wide array of analog, serial digital and digital high-definition formats. The TG700 Multiformat Video Generator has a modular architecture that offers the flexibility to meet the single format and growing multiformat needs of the video professional. The TG700 mainframe allows up to four of the following modules to be fitted in the mainframe.



The TG700 has a high stability reference. The AGL7 Analog Genlock Module adds the capacity to lock to a variety of signals, which makes the TG700 an ideal solution as the master house reference or slave reference for broadcast and production/ post-production applications. Three black outputs are available and are selectable for HDTV tri-level or NTSC or PAL. Additionally, the AGL7 can lock to a variety of formats to include NTSC/PAL black and HDTV tri-level as well as 1, 3.58, 4.43, 5 and 10 MHz CW. When the AGL7 is configured for Stay GenLock™ mode, a momentary loss of synchronization at the genlock reference input will not cause a disturbance in the TG700's test signal and black outputs. When the genlock signal is reapplied, the AGL7 will gradually re-acquire lock, causing little disruption to devices synchronized to the TG700 reference.

#### ▶ Features & Benefits

Multiformat Analog and Digital Test Signal Generation

Ideal Channel Configuration and Performance to Support Reference Generator Needs

Modular Expandable Platform

Stay GenLock™ – Unique, Robust Genlock Mode Provides Stable Synchronization Signals for Digital and Traditional Broadcast Facilities

#### Applications

Reference Generator and Test Signal Generator for Postproduction and Broadcast Facilities

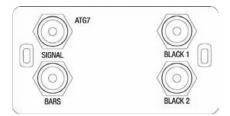
Test Signal Generator for Research and Development

Equipment Design and Maintenance

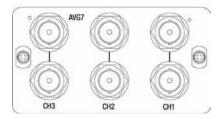


### Multiformat Video Generator

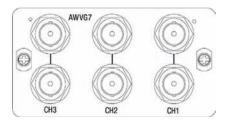
#### ► TG700



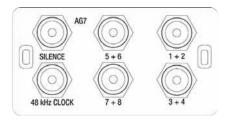
The ATG7 Composite Analog Test Generator supports PAL, NTSC and NTSC NoSetup. It provides one test signal output, one color bar test signal output and two black outputs. The black outputs can independently generate H, V, Blackburst and subcarrier.



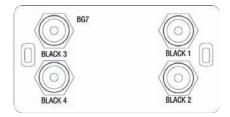
The AVG7 is an Analog Video Generator for 525/625 interlace formats supporting component (Y'P'bP'r, G'B'R' Y/C), 525 Beta and composite (PAL, NTSC, NTSC NoSetup). It provides two identical component outputs, two identical Y/C and Composite or six identical composite outputs.



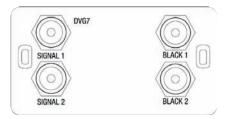
The AWVG7 is an Analog Wideband Video Generator that supports a variety of HD analog component formats (Y'P'bP'r or G'B'R'). The module provides two identical component outputs with a bandwidth of 30 MHz. Up to two AWVG7 Analog Wideband Video Generators can be placed in a single TG700 mainframe.



The AG7 provides eight channels (four AES/EBU pairs) of audio signal generation. It also provides two channels (1 AES/EBU pair) of silence as well as a 48 kHz clock output.

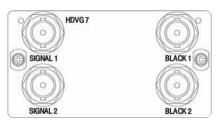


The BG7 is an analog black generator with four independently selectable outputs. The BG7 Black Generator supports NTSC and PAL black burst as well as HDTV tri-level sync. With Option CB, two of the outputs can also generate various analog NTSC and PAL color bar test signals.



DVG7 (shown with Option BK).

The DVG7 is a multiformat test signal generator. The DVG7 Digital Video Generator supports 525 and 625 component digital at 270 Mb/s and NTSC composite digital at 143.181818 Mb/s. The DVG7 Digital Video Generator has two identical test signal outputs. With Option BK, two additional identical serial digital black signal outputs are available.

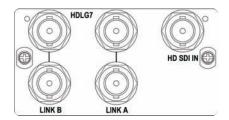


► HDVG7 (shown with Option BK).

The HDVG7 is a high-accuracy, multiformat, high-definition test signal module that provides up to two identical 1.485 Gb/s serial digital video test signal outputs in a broad variety of formats. With Option BK, two additional identical serial black signal outputs are available. Up to two HDVG7 HDTV Digital Video Generators can be placed in a single TG700 mainframe.

The digital modules DVG7 and HDVG7 support AV timing mode and up to 16 channels of 20- or 24-Bit audio sampled at 48 kHz embedded on the test signal outputs. The user can independently set frequency and level for each channel.

Option FP allows generation of full-frame test and custom patterns for the AVG7, AWVG7, DVG7 and HDVG7 modules. Simple full-frame patterns are available on V3.1 (or higher than V3.1) CD-ROM.



The HDLG7 is a test signal generator that provides two identical dual-link high-definition serial digital interface (HD SDI) outputs. The module supports video formats that require the use of a dual-link interface, such as 4:4:4 R'G'B', at rates up to 1080i/60 Hz or 1080p/30 Hz or 4:2:2: Y'C'bC'r at rates up to 1080p/60 Hz. The HDLG7 supports several standard test signals, and also has the unique ability to up-convert an arbitrary single-link HD SDI input signal to a dual-link format for the outputs. The HDLG7 also supports digital cinema 2K formats and test patterns.

#### ► Characteristics

#### TG700, Mainframe

Internal Reference Frequency – 13.5 MHz.

Long-term Stability – Less than 1 ppm/year.

Number of Slots for Modules – 4.

Power Supply Slot – 1.

Network Interface – 10Base-T Ethernet.

#### AGL7, Analog Genlock Module

PAL-M and PAL-N are not supported by AGL7.

#### **Reference Input**

**Loopthrough Input** – Input connector: 75  $\Omega$  x2. Input signal: NTSC/PAL black burst or HDTV tri-level sync.

Amplitude range: Standard ±6 dB.

S/N ratio: >40 dB. SCH phase:  $0 \pm 40^{\circ}$ .

Return Loss –  $\geq$ 30 dB 5 MHz to 30 MHz. Burst Lock/Sync Lock Stability –

±3 dB amplitude change: <1 ns. Jitter with burst lock: <0.5°. Jitter with sync lock: <1 ns.

#### **CW** Input

Input Impedance  $-75~\Omega$ , internal term. Input signal: CW (continuous wave). Amplitude: 2 V (1 to 2.25) V<sub>pk-pk</sub>. Frequency: NTSC/PAL FSC, 1/5/10 MHz. Return loss: >30 dB to 30 MHz.

#### CW Lock Stability -

Over the amplitude range: <1 ns. Jitter: <1 ns (typ. 1°) with CW input S/N >50 dB.

#### Genlock Time Adjustment -

Range: Anywhere in the color frame. Resolution: <0.5° of NTSC/PAL subcarrier. 1 ns with tri-level sync input.

#### Color Framing -

Keeps accuracy even with  $\pm 45^{\circ}$  SCH error of input reference input.

#### Black Input Signal -

Black 1: NTSC/PAL black burst output. Black 2,3: NTSC/PAL black burst output or tri-level HDTV sync.

#### Output Format -

same source).

Combination of the following:

1. NTSC/PAL black burst x3 (1 black burst is an independent, black burst x2 are distributed outputs).

2. NTSC/PAL black burst x2, HDTV tri-level sync x1 (all black burst and HDTV tri-level sync are independent).

3. NTSC/PAL black burst x1, HDTV tri-level sync x2 (HDTV tri-level sync x2 are distributed from the

#### **NTSC/PAL Black Burst Output**

Output Standard - EBU N14, SMPTE RP 154. Amplitude Accuracy – Black burst std. ±2%. Burst Frequency - NTSC/PAL FSC ±1 Hz. SCH Phase  $- < \pm 5^{\circ}$ .

#### **HDTV Tri-level Sync Output**

Matching Standard -

SMPTE 240M, 274M, 296M, RP211.

Amplitude Accuracy -

Std. HDTV tri-level ±2%.

#### **Output Signal Timing Adjustment**

NTSC/PAL Black Burst Output -

Range: Anywhere in the color frame. Resolution: <0.5° of NTSC/PAL subcarrier.

HDTV Tri-level Sync -

Range: Anywhere in the frame.

Resolution: <1 ns.

Output Impedance –  $75 \Omega$ .

Return Loss - >30 dB to 30 MHz.

#### AG7, Audio Generator

#### **Audio Test Signal Output**

Standard - ANSI S4.40 (AES3), AES3-ID.

Output Channels - 8 channels (4 AES/EBU pairs).

**Output Impedance** – 75  $\Omega$ , unbalanced.

Output Connector - BNC x4.

Output Amplitude – 1 V  $\pm 0.2$  V.

Frequency (Hz):

50. 100, 150, 200, 250, 300, 400, 500, 600, 750, 800, 1000, 1200, 1500, 1600, 2000, 2400, 3000,

3200, 4000, 4800, 5000, 6000, 8000, 9600, 10000, 12000, 15000, 16000, 20000.

Level: -60 to 0 dBFS, 1 dB step.

Sampling Frequency - 48 kHz (lock on video signal).

Quantization -

Linear PCM, 20- or 24-Bits (2's complement).

Transfer Coding - Bi-phase mark.

#### Silence Output

Standard - ANSI S4.40 (AES3), AES3-ID.

Channel – 2 channels (one AES/EBU pair).

**Output Impedance** – 75  $\Omega$ , unbalanced.

Output Connector - BNC x1.

Output Amplitude - 1 ±0.2 V.

Frequency, Level - No signal.

Sampling Frequency - 48 kHz (lock on video signal).

Quantization -

Linear PCM, 20- or 24-Bits (2's complement).

**Transfer Coding –** Bi-phase mark.

#### ATG7, Analog Test Signal Generator

#### Signal Output

NTSC/NTSC No Setup Test Signals -

100%/75% Color Bars.

SMPTE Color Bars.

0% (NTSC only)/10%/40%/50%/100% Flat Field.

Black Burst.

Black Burst with Field Reference.

Field Square Wave.

10/5 Step, Ramp.

Modulated 5 Step.

Modulated Ramp.

Modulated Pedestal.

Shallow Ramp.

Convergence.

2/4 Level Pedestal and Pluge.

100%/75% Red Field.

Gray/White Window.

Safe Area.

Monitor Setup.

100%/60% Multiburst.

Multipulse.

100%/60% Sweep.

Chroma Frequency Response.

Window 2T Pulse and Bar.

Sin(x)/x.

FCC Composite/Multiburst.

NTC7 Composite/Combination.

Test Matrix SNG Color Bars and 0%to 100% Bounce.

APL High/Low, APL Bounce.

#### PAL Test Signals -

PAL-M and PAL-N are not supported by ATG7.

100%/75% Color Bars.

100%/75% Color Bars Over Red.

40%/50%/100% Flat Field.

Black Burst.

Black Burst with No Field Reference.

Field Square Wave.

5/10 Step.

Ramp.

Modulated 5/10 Step.

Modulated Ramp.

Modulated Pedestal.

Shallow Ramp.

Convergence.

2/4 Level Pedestal and Pluge.

100%/75% Red Field.

Gray/White Window.

Safe Area.

Monitor Setup Matrix.

100% Multiburst.

Multipulse.

100%/75% Sweep.

Window 2T Pulse and Bar.

Sin(x)/x.

CCIR 17/18/330/331.

LIK ITS 1/2

UK 1 Line ITS.

ITS Matrix and 0% to 100% Bounce.

APL High/Low, APL Bounce.

#### ID Text -

Max 18 characters. One row (character 14x11 pixels). Text and Position is embedded to each signal.

Luminance Amplitude - ±1% (Measured at 700 mV).

Chrominance-to-Luminance Gain  $-\pm 1\%$ .

Frequency Response –  $\pm 1\%$  to 5.5 MHz.

Chrominance-to-Luminance Delay  $- \le 10$  ns.

**Linearity** – ≤1% (measured at 5 Step Signal).

**Differential Gain Error** – ≤0.5%. Differential Phase Error - ≤0.5°.

#### **BARS Output**

NTSC/NTSC No Setup Signals -

100%/75% Color Bars.

SMPTE Color Bars.

40% Flat Field.

Black Burst.

Black Burst with Field REF.

Monitor setup, SNG Color Bar.

#### PAL Signals -

100%/75% Color Bars.

100%/75% Color Bars Over RED.

40% Flat Field.

Black Burst.

Black Burst with No Field REF.

Monitor setup, SNG color bars.

ID Text - Max 18 characters. One row (character

14x11 pixels).

Text and position is embedded to each signal.

**Luminance Amplitude**  $-\pm1\%$  (Measured at 700 mV). Chrominance-to-Luminance Gain  $-\pm 2\%$ .

#### **BLACK 1/2 Outputs**

NTSC/NTSC No Setup Signals -

Black Burst

Black Burst with Field Reference.

Timing Pulse (Subcarrier, Composite Sync, H Drive,

V Drive, Composite Blanking and Color Frame ID).

#### PAL Signals -

Black Burst.

Black Burst with Field Reference.

Timing Pulse (Subcarrier, Composite Sync, H Drive, V Drive, Composite Blanking, Color Frame ID and PAL Pulse).

Timing Pulse Amplitude -0.5 to 0.5 V (1  $V_{nk-nk}$ ).

#### SIGNAL, BARS and BLACK 1/2 (Common)

Standards -

ITU-R BT. 470-6.

SMPTE 170M.

Output Impedance –  $75 \Omega$ .

**Return Loss**  $- \ge 36$  dB to 6 MHz.

Burst Amplitude –  $\pm 2\%$ .

Sync Amplitude –  $\pm 2\%$ 

Blanking Level - 0 mV ±50 mV.

SC/H Phase Accuracy - 0° ±5°.

Timing Offset Range - Full Color Frame.

Timing Offset Resolution - 54 MHz Clock Resolution.

#### **AVG7, Analog Video Generator**

#### **Analog Signal Output**

Test Signals -

Output signal (preinstalled for all formats): 100%, 75% and SMPTE Color Bars, Linearity, Flat Field, Multiburst, Sweep, Monitor, Pulse and Bar and other major test signals.

#### Formats Supported -

NTSC, NTSC No Setup, PAL, 525 R'G'B', 525 Y'P'bP'r. 525 Beta, 625 R'G'B', 625 Y'P'bP'r.

#### Outputs -

6 identical analog composite outputs, 2 identical component video outs, or 2 identical Y/C and composite out.

Output Impedance –  $75 \Omega$ .

**Luminance Linearity Error** – ≤0.5%.

**Luminance Amplitude**  $-\pm1\%$  (Measured at 700 mV).

Chrominance-to-Luminance Gain Error -

≤1% (relative to 100 kHz).

Chrominance-to-Luminance Delay -

≤2.5 ns on a composite output (typical).

**Channel-to-Channel Delay –** ≤1 ns (Relative to CH1).

Frequency Response -

≤0.5% to 8 MHz at 700 mV (typical).

**Differential Gain Error** – ≤0.5%.

Differential Phase Error - ≤0.5°.

Timing Adjustment for the Output Signal -

Range: Anywhere in the frame.

Resolution: 0.1 ns.

Return Loss - ≥40 dB to 6 MHz.

## AWVG7, Analog Wideband Video Generator

#### **Analog Signal Output**

Test Signals -

(Preinstalled for all formats.) 100%, 75% and SMPTE Color Bars, Linearity, Multiburst, Sweep, Monitor and other major test signals.

#### Formats Supported -

(All formats are factory preinstalled.)
Y'P'bP'r or R'G'B' 1080i/50 Hz, 59.94 Hz, 60 Hz.
1080p/23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz.
1080psF/23.98 Hz, 24 Hz.
720p/23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz,

720p/23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 H. 50 Hz, 59.94 Hz, 60 Hz.

#### Outputs -

2 identical analog component video outputs.

Output Impedance –  $75 \Omega$ .

**Output Amplitude** – ≤1% at 700 mV.

**Channel-to-Channel Delay –** ≤1 ns relative to CH 1. **Frequency Response –** 

 $\pm 1\%$  to 20 MHz.

 $\pm 2\%$  to 28 MHz.

 $\pm 3\%$  to 30 MHz.

Timing Adjustment for the Output Signal -

Range: Anywhere in the frame.

Resolution: 0.1 ns.

Return Loss - ≥35 dB to 30 MHz.

#### **BG7**, Black Generator

PAL-M and PAL-N are not supported by BG7.

#### Black Output 1/2/3/4

NTSC/PAL black burst and independently selectable HDTV tri-level analog sync.

#### **Black Burst Output**

Output Standard -

EBU N14, SMPTE RP 154, RP318M-B. Amplitude Accuracy – Std. Black burst  $\pm 2\%$ . SCH Phase –  $<\pm 5^{\circ}$ .

#### **HDTV Tri-level Sync Output**

Standard – SMPTE 240M, 274M, 296M, RP211.

Amplitude Accuracy – Std. HDTV tri-level ±2%.

Timing Adjustment – Each output is independent.

NTSC/PAL Black Burst –

Range: Anywhere in the color frame. Resolution: Clock resolution 18.5 ns (1/54 µs).

HDTV Tri-level Sync -

Range: Anywhere in the frame. Resolution: Clock resolution 13.5 ns (1/74.25  $\mu$ s).

#### Analog Test Signal (Opt. CB)

Test Signals (black 3/4 output) -

NTSC, NTSC No Setup:

100% Color Bars, 75% Color Bars, SMPTE Color Bars, 40% flat field, SNG Color Bars, Monitor Setup Matrix, 10 field ID.

PAL:

100% Color Bars, 75% Color Bars, 100% Color Bars Over Red, 75% Color Bars Over Red, 40% Flat Field, SNG Color Bars, 4 Level Pluge, Monitor Setup Matrix.

Luminance amplitude accuracy:  $\pm 1\%$  (video at 100%). Chroma amplitude accuracy:  $\pm 2\%$ .

Output Impedance – 75  $\Omega$ . Return Loss –  $\geq$ 30 dB to 30 MHz. Jitter –  $\leq$ 1 ns.

#### **DVG7**, Digital Video Generator

#### **Serial Digital Signal Output**

Test Signals -

(Preinstalled for all formats):

100%, 75% and SMPTE Color Bars, Linearity, Multiburst, Sweep, Monitor, SDI pathological, Timing and other major test signals.

#### Standards -

ITU-R BT 601, 656, EBU Tech 3267, SMPTE 125M, 244M, 259M, 272M, RP165, RP178.

Bit Rate - 143 Mb/s, 270 Mb/s.

Resolution - 8- or 10-Bits.

Output Impedance –  $75 \Omega$ .

Output Amplitude –  $800 \text{ mV}_{pk\text{-}pk} \pm 10\%$ .

Overshoot  $- \le 10\%$ .

**Rise/Fall Time –** 0.4 to 1.5 ns (20 to 80%).

DC Offset (AC couple)  $-0 \pm 0.5 \text{ V}$ .

Jitter - ≤0.2 UI, above 10 Hz jitter frequency.

Timing Adjustment for the Output Signal –

Range: Anywhere in the frame.

Resolution: Clock resolution (37 or 70 ns).

**Return Loss –** >15 dB 5 to 270 MHz.

#### **Embedded Audio Signal**

Active Channels – 1 to 16 channels. Sample Frequency – 48 kHz. Digital Coding – 20- or 24-Bits.

Signal Alignment -

Async., and Sync. (no frame #), Synchronous (frame #). **Audio Tone** –

Frequency (Hz):

50, 100, 150, 200, 250, 300, 400, 500, 600, 750, 800, 1000, 1200, 1500, 1600, 2000, 2400, 3000, 3200, 4000, 4800, 5000, 6000, 8000, 9600, 10000, 12000, 15000, 16000, 20000.

Level - -60 to 0 dBFS, 1 dB steps.

## HDVG7, HDTV Digital Video Generator

#### Serial Digital Signal Output

#### Test Signals -

(Preinstalled for all formats.)

100%, 75% and SMPTE Color Bars, Linearity, Multiburst, Sweep, Monitor, SDI pathological, Timing and other major test signals.

**Standards** – SMPTE 240M, 272M, 292M, 296M. **Bit Rate** – 1.485 Gb/s, 1.485/1.001 Gb/s.

#### Output Format -

1035i/59.94 Hz, 60 Hz.

1080i/50 Hz, 59.94 Hz, 60 Hz.

1080p/23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz. 1080psF/23.98 Hz, 24 Hz.

720p/23.98 Hz, 24 Hz, 50 Hz, 59.94 Hz, 60 Hz.

Output Impedance –  $75~\Omega$ .

Output Amplitude –  $800~\text{mV}_{\text{pk-pk}} \pm 10\%$  (typ.).

**Overshoot** - ≤10% (typ.).

**Rise/Fall Time** – ≤270 ps (20 to 80%) (typ.).

DC Offset (AC coupling) –  $0 \text{ V} \pm 0.5 \text{ V}$  (typ.).

**Jitter** – ≤135 ps (typ.).

#### Timing Adjustment for the Output -

Range: Anywhere in the frame.

Resolution: Clock resolution 13.5 ns (1/74.25 MHz).

#### Return Loss -

≥15 dB from 5 MHz to 750 MHz.

≥10 dB from 750 MHz to 1.485 GHz (typ.).

#### **Embedded Audio Signal**

Active Channels - 1 to 16 channels.

Sample Frequency - 48 kHz.

Digital Coding - 20- or 24-Bits.

#### Signal Alignment -

Async., and Sync. (no frame #), Synchronous (frame #).

#### **Audio Tone –** Frequency (Hz):

50, 100, 150, 200, 250, 300, 400, 500, 600, 750, 800, 1000, 1200, 1500, 1600, 2000, 2400, 3000, 3200, 4000, 4800, 5000, 6000, 8000, 9600, 10000, 12000, 15000, 16000, 20000.

**Level –** -60 to 0 dBFS, 1 dB steps.

#### HDLG7 HD Dual-link Video Generator

#### **Serial Digital Signal Output**

#### Test Signals -

100%, 75%, and SMPTE Color Bars, Flat Field (0% to 100% in 10% steps), 100% and 75% Red/Green/Blue, Convergence, Ramp, Valid Ramp, 5 Step Staircase, 2T30 Pulse and Bar, SDI pathological.

#### Projector Test Patterns (2K only) -

Color Patch 1, Color Patch 2, Black-to-White Step Scale, Black-to-Gray Step Scale, Horizontal Gradient, Vertical Gradient, Flat Fields (each step-scale color), Red/Green/Blue/Cyan/Magenta/Yellow Color Fields, Grid, Aspect Ratio Frame, Checkerboard, Window.

#### HD-SDI Converter -

Input signal up-converted to dual-link format for output signal.

**Standards** – SMPTE 372M, 292M, 352M.

#### Bit Rate -

1.485 Gb/s, 1.485/1.001 Gb/s for each link.

#### Output Format -

1080i/50 Hz, 59.94 Hz, 60 Hz.

1080p/23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz,

50 Hz, 59.94 Hz, 60 Hz.

1080psF/23.98 Hz, 24 Hz.

 $2048x1080p/23.98\;Hz,\,24\;Hz,\,25\;Hz,\,29.97\;Hz,\,30\;Hz.$ 

2048x1080psF/23.98 Hz, 24 Hz.

2048x1556pSF/14.99 HZ, 15 Hz, 17.98 Hz, 18 Hz.

#### Sampling Format –

4:2:2 Y'C'bC'r, 4:4:4 Y'C'bC'r, 4:4:4 G'B'R', 4:4:4 X'Y'Z'.

Word Size - 10 or 12 bits.

#### Alpha Channel -

Same as Y/G channel or Flat Field (0% to 100% in 10% steps).

#### Embedded Audio -

16 channels copied from input signal to Link A and/or Link B in convertor mode. No embedded audio in generator mode.

#### Payload Identifier -

Link A and Link B identified as per SMPTE 352M.

#### Link Timing Offset -

Adjustable timing offset between Link A and Link B, ±200 ns in single clock increments.

#### Output Impedance – $75 \Omega$ .

**Output Amplitude** – 800 mV<sub>pk-pk</sub> ±10%.

**Overshoot** - ≤10% (typ.).

**Rise/Fall Time** –  $\leq$ 270 ps (20 to 80%).

DC Offset (AC coupling)  $-0 \text{ V} \pm 0.5 \text{ V}$  (typ.).

**Jitter** – ≤135 ps (typ.).

#### Timing Adjustment for the Output -

Range: Anywhere in the frame.

Resolution: Clock resolution 13.5 ns (1/74.25 MHz).

#### Return Loss -

 $\geq$ 15 dB from 5 MHz to 750 MHz.  $\geq$ 10 dB from 750 MHz to 1.485 GHz.

#### **Environmental**

**Power Consumption** – 100 W (max.). **Temperature** – 0  $^{\circ}$ C to +50  $^{\circ}$ C.

**Altitude** – 4500 meters (15,000 ft.). **Source Voltage** – 100 to 240 V, 48 to 63 Hz.

#### **Physical Characteristics**

Dimensions	mm	in.
Height	44	1.73
Width	483	19
Length	559	22
Weight	kg	lbs.
Net	8.2	18

## ► Ordering Information

#### **TG700**

Mainframe.\*1 Up to four modules can be fitted in the frame. Please specify power cord when ordering.

**Opt. FP** – Frame picture function (available only for AVG7, AWVG7, DVG7 and HDVG7 modules).

#### **Modules**

#### AGL7

Analog Genlock.

#### AG7

Audio Generator.

#### ATG7

Analog Test Generator Module.

#### AVG7

Component and Composite Analog Video Generator Module.

#### AWVG7

Analog Wideband Video Generator Module.

#### BG7

Black Generator.

**Opt. CB** – Add NTSC/PAL color bar. Option must be added at time of order. Option cannot be added later.

<sup>\*1</sup> Order requires one of the modules.

#### **Contact Tektronix:**

ASEAN / Australasia (65) 6356 3900

Austria +41 52 675 3777

Balkan, Israel, South Africa and other ISE Countries +41 52 675 3777

Belgium 07 81 60166

Brazil & South America (11) 40669400

Canada 1 (800) 661-5625

Central East Europe, Ukraine and the Baltics  $\,$  +41 52 675 3777

**Central Europe & Greece** +41 52 675 3777

**Denmark** +45 80 88 1401 **Finland** +41 52 675 3777

France +33 (0) 1 69 86 81 81

Germany +49 (221) 94 77 400

Hong Kong (852) 2585-6688

India (91) 80-22275577

Italy +39 (02) 25086 1

Japan 81 (3) 6714-3010

**Luxembourg** +44 (0) 1344 392400

Mexico, Central America & Caribbean 52 (55) 5424700

Middle East, Asia and North Africa +41 52 675 3777

The Netherlands 090 02 021797

Norway 800 16098

People's Republic of China 86 (10) 6235 1230

Poland +41 52 675 3777

Portugal 80 08 12370

Republic of Korea 82 (2) 528-5299

Russia & CIS +7 (495) 7484900

South Africa +27 11 254 8360

Spain (+34) 901 988 054

Sweden 020 08 80371

Switzerland +41 52 675 3777

**Taiwan** 886 (2) 2722-9622

United Kingdom & Eire +44 (0) 1344 392400

USA 1 (800) 426-2200

For other areas contact Tektronix, Inc. at: 1 (503) 627-7111 Updated 15 September 2006

#### DVG7

Digital Video Generator.

**Opt. BK –** Add SDI black outputs. Option must be added at time of order. Option cannot be added later.

#### **HDVG7**

HDTV Digital Video Generator.

**Opt. BK –** Add black outputs. Option must be added at time of order. Option cannot be added later.

#### **HDLG7**

HD Dual-link Video Generator.

#### **Module Limitations**

Only one AGL7 module may be installed in one TG700 mainframe.

No more than two HDVG7 or AWVG7 modules, in any combination, may be installed in one TG700 mainframe.

#### Warranty

1 year parts and labor.

#### **Common Options for All Models**

**Opt. 88 –** Module installation.\*2

**Opt. D1** – Calibration data report in English/Japanese.

#### **Standard Accessories**

User Manual, CD-ROM (Containing ARIB STD-B28 standard Multiformat Color Bar library, SMPTE RP219 HD/SD Compatible Color Bar library, TG7 Communication SW, TG7 Setup SW, Logo Gen, Frame Picture Gen, Signal Viewer, Signal DNL, Sample Frame Pictures and Logos), Rackmount Kit and Power Cord.

Please specify power cord when ordering.

#### **Power Cord Options**

#### **International Power Plugs**

Opt. A0 - North America power.

Opt. A1 - Universal Euro power.

Opt. A2 - United Kingdom power.

Opt. A3 - Australia power.

Opt. A4 - 240 V, North America power.

Opt. A5 - Switzerland power.

#### Service

Opt. C3 - Calibration Service 3 years.

Opt. C5 - Calibration Service 5 years.

**Opt. D1 –** Calibration Data Report.

**Opt. D3 –** Calibration Data Report 3 years (with Option C3).

**Opt. D5 –** Calibration Data Report 5 years (with Option C5).

**Opt. R3** – Repair Service 3 years (including Warranty).

**Opt. R5** – Repair Service 5 years (including Warranty).

#### **Optional Accessories**

**TG700 Opt. FP Upgrade Kit –** Order 040-1698-00.

This kit upgrades any TG700 to 64 MB Flash Memory.

Service Manual - Order 070-A800-xx.

Power Supply Module – Order 650-A810-00. Blank Panel for TG700 – Order 614-A021-00.

\*2 Applies to mainframe and all modules.

Our most up-to-date product information is available at: www.tektronix.com

Product Area Assessed. The planning, design/ development and manufacture of electronic Test and Measurement instruments.

CE





Copyright © 2007, Tektronix. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks or registered trademarks of their respective companies.

4/07 HB/WOW 20W-14227-6

