

Converts Analog RGB Signal into Five formats for Digital TV Broadcasting System



**LT 1606**  
**VIDEO ENCODER**

● GENERAL

The LT 1606 extends the flexibility of programmable RGB generators, in terms of stock and custom patterns and raster parameters (within limits), into the testing of monitors and systems that operate in fully encoded NTSC, PAL and the new HDTV analog-component systems. NTSC and PAL outputs contain fully encoded subcarrier and burst and are available in full composite and separate Y/C using the standard 4-pin SVHS connector. Analog-component feeds Y, P<sub>B</sub>, P<sub>R</sub> as well as actively buffered RGB, are available at the same time, making the encoder an extremely useful tool for engineering, setup of HDTV projectors, service and QC applications.

● FEATURES

- Generates NTSC, PAL and HDTV Analog Components
- Operates from R, G, B, CS and Clock from RGB Generators  
LT 1610A, LT 1611, LT 1613, LT 1615
- NTSC, PAL or HDTV Set Up Automatically from Input Clock
- NTSC and PAL Outputs in Full Composite, Separate Y and C and Analog Components Y, P<sub>B</sub>, P<sub>R</sub>
- HDTV Includes 1080i, 1080p, 720p, 480i, 480p and Others
- HDTV Analog are 3-Wire Y, P<sub>B</sub>, P<sub>R</sub> with Tri-Level Sync
- Simultaneous Active RGB Outputs to Drive RGB Monitors

● SPECIFICATIONS

LT 1606

Input Signals

**Analog R, G, B** (Specifications are common to each signal)  
**Polarity:** Positive  
**Amplitude**  
**NTSC:** 714 mV (pedestal level to 100%)  
 (pedestal level: 0 mV)  
 \*Input signal level required to obtain the Y output level of 714 mV (pedestal level to 100% white)  
**PAL, 480i, 480p, 720p, 1080i, 1080p:** 700 mV (pedestal level to 100%)  
 (pedestal level: 0 mV)  
 \*Input signal level required to obtain the Y output level of 700 mV (pedestal level to 100% white)  
**Maximum Input Voltage:** 1.5 Vp-p  
**Input Coupling:** DC coupled  
**Impedance:** 75 Ω  
**Sync Signal:** Not required  
**Connector:** BNC, 1 each

Composite Sync

**Logic Polarity:** Negative  
**Amplitude:** C-MOS/ TTL level (H = ≥4 V, L = ≤1 V)  
**H Sync period**  
**NTSC:** 4.749 μs  
**PAL:** 4.737 μs  
**480i:** 4.667 μs  
**480p:** 2.333 μs  
**720p:** 0.539 μs  
**1080i:** 0.593 μs  
**1080p:** 0.297 μs  
**Connector:** BNC, 1  
 \*The sync should be positioned at the specified point on the blanking period of R, G, B signal.

Clock Signal

**Frequency**  
**NTSC:** 14.318 MHz  
**PAL:** 17.734 MHz  
**480i:** 13.500 MHz  
**480p:** 27.000 MHz  
**720p/ 1080i:** 74.176 MHz Frame (Field) Frequency 59.94 Hz  
 74.250 MHz Frame (Field) Frequency 60 Hz  
 148.352 MHz Frame Frequency 59.94 Hz  
 148.500 MHz Frame Frequency 60 Hz  
**1080p:** 148.500 MHz Frame Frequency 60 Hz  
**ECL level (≥0.6 Vp-p)**  
**Amplitude:** AC coupled  
**Input Coupling:** 75 Ω  
**Impedance:** 75 Ω  
**Connector:** BNC, 1

Output Signals

Composite Signal, Y/C Signal

**Video System:** NTSC, PAL (automatic selection)  
 \*In the PAL system, 25 Hz offsetting of the subcarrier is disabled.  
**Level:** 1 Vp-p±50 mV (sync tip to 100% white)  
**Sync Level**  
**NTSC:** 286 mV±15 mV  
**PAL:** 300 mV±15 mV  
**Color Burst Level**  
**NTSC:** 286 mV±15 mV  
**PAL:** 300 mV±15 mV  
**Phase Accuracy:** ±3°  
**Impedance:** 75 Ω  
**Connector**  
**Composite:** BNC, 2  
**Y/C:** S, 1

Y, P<sub>B</sub>, P<sub>R</sub> Output

**Video System:** NTSC, PAL, 480i, 480p, 720p, 1080i, 1080p (automatic selection)  
**Level:** 1 Vp-p±50 mV (sync tip to 100% white)  
**Sync Level**  
**NTSC:** 286 mV±15 mV  
**PAL, 480i, 480p:** 300 mV±15 mV  
**720p, 1080i, 1080p:** 300 mV±15 mV(Negative Polarity)  
 300 mV±15 mV(Positive Polarity)  
**Video Level**  
**Y**  
**NTSC:** 714 mV±36 mV (pedestal to 100% white)  
**Others:** 700 mV±35 mV (pedestal to 100% white)  
**P<sub>B</sub>**  
**NTSC:** 714 mVp-p±36 mV  
**Others:** 700 mVp-p±35 mV  
**P<sub>R</sub>**  
**NTSC:** 714 mVp-p±36 mV  
**Others:** 700 mVp-p±35 mV  
**Impedance:** 75 Ω  
**Connector:** BNC, 2 each

Analog R, G, B • Active Output

**Output Signal:** Active output for analog R, G, B  
**Level:** Input level ±5%  
**Frequency Response:** ±3 dB(30 MHz)  
**Impedance:** 75 Ω  
**Connector:** BNC, 1 each

Environmental Conditions

**Operating Temperature:** 0 to 40°C  
**Operating Humidity:** ≤ 85 % RH (without condensation)  
**Spec-Guaranteed Temperature:** 10 to 30°C  
**Spec-Guaranteed Humidity:** ≤ 85 % RH (without condensation)  
**Operating Environment:** Indoor use  
**Operational Altitude:** Up to 2,000 m  
**Overvoltage Category:** II  
**Pollution degree:** 2

Power Requirements:

100, 115, 230 VAC, ±10%, 250 V max. (selectable), 50/ 60 Hz, 15 VA max.

Dimensions:

Weight:

Accessories:

- 295 (W) x 72 (H) x 210 (D) mm
- 2 kg
- Power Cord ..... 1
- Sample Data(3.5 inch FD) ..... 1
- (For LT 1610 Series Programmable Video Generators)
- Instruction manual ..... 1