TASCAM

CG-2000
Technical Information

PRODUCT OVERVIEW

INTRODUCTION

TASCAM's flagship master clock generator for studio and broadcast applications is the **CG-2000**. Designed to handle the needs of large post production and broadcast facilities, the CG-2000 is also ideal for recording studios looking for the ultimate in reliability.

The CG-2000 clock generator starts with a high-precision OCXO. This oven-controlled crystal oscillator has 0.01PPM accuracy – the highest precision in its class. Jitter Management and Glitch-free Relocking circuits ensure highly-accurate clock outputs by smoothly reacting to dropouts. For applications demanding even more accuracy, a 10MHz input accepts signal from Rubidium or GPS-based generators.

Video clock inputs and outputs are available for use with video blackburst generators, and tri-level sync is supported for high-definition video. Four video clock outs join the 12 word clock outputs. Two of the word clock outs can be set to alternate speeds, supporting 256fs for Avid systems or downsampling for mixed 96k/48k facilities. The unit can be set from 32kHz to 192kHz sampling rates.

The entire design of the CG-2000 has been built with reliability in mind. A primary and secondary source can be selected as the clock master in case of interruption. It also features redundant power supplies and a GPO for sending error alarm or system status info to a control room.

FEATURES

- High-precision OCXO (Oven-Controlled Crystal Oscillator) with 0.01PPM accuracy
- Jitter management circuit for stable clock output
- Glitch-free relocking circuit prevents noise and skipping during clock dropouts and recovery
- 10MHz input for use with Rubidium or GPS clock generators
- Twelve word clock outputs, two of which support 1/2Fs, 1/4Fs, 2xFs, 4xFs, and 256xFs the selected rate
- Two AES/EBU and two S/PDIF outputs
- Four system presets, saved internally with USB drive backup
- Sampling Frequencies from 32kHz to 192kHz are supported
- Panel lock switch to prevent accidental changes
- Four video clock outputs
- Video clock input
- Tri-level sync support for high-definition video
- Clock Analyzer functions for troubleshooting
- Dual redundant power supplies
- Dual video and word clock inputs
- AES/EBU clock input
- GPO for tally alarms and status monitoring
- 1u rack mount size

SPECIFICATIONS

Video Inputs

Connector type: BNC
Input level: 0.5–2.0 Vp-p
Input impedance: 75 Ω (switchable in menu)

Input format
SD video black burst:
NTSC (RS-170A)
PAL (ITU-R624)
SD video composite sync:
NTSC B/W (RS-170)
HD video tri-level:
720p/50/59.94/60 (SMPTE 296M)
1080p/23.976/24/25/29.97/30/50/59.94/60 (SMPTE 274M)
1080i/23.976/24/25/29.97/30 (SMPTE 274M)
1080PsF/23.976/24/25/29.97/30 (SMPTE RP211)
Permissible frequency deviation: ±10 ppm

Word/Ext Inputs

Connector type: BNC
Input level: 0.5–5.0 Vp-p
Input impedance: 75/50 Ω (can set to 75/50/OFF in menu)

Supported frequencies
WORD CLOCK: 32/44.1/48/88.2/96/176.4/192 kHz (−4/−0.1/0.0/+0.1/+4% PULL UP/DOWN supported only when 48/96/192 kHz selected)
ATOM: 10.0 MHz
GPS: 10.0 MHz
Permissible frequency deviation: ±10 ppm

AES3/11 Input

AES3/11 INPUT
Connector type: XLR-3-31
Input level: 0.2–10 Vp-p
Input impedance: 110 Ω
Format: AES11-2003, AES3-2003, IEC60958-4

Supported frequencies:
32/44.1/48/88.2/96/176.4/192 kHz (−4/−0.1/0.0/+0.1/+4% PULL UP/DOWN supported only when 48/96/192 kHz selected)
Permissible frequency deviation: ±10 ppm

Calibration Input

Connector type: BNC
Input level: 0.5–5.0 Vp-p
Input impedance: 50 Ω (can turn ON/OFF in menu)
Supported frequencies
ATOM: 10.0 MHz
GPS: 10.0 MHz, PPS

Video Outputs

Connector type: BNC
Output impedance: 75 Ω

Output format
SD video black burst:
NTSC (RS-170A)
PAL (ITU-R624)
SD video composite sync:
NTSC B/W (RS-170)
HD video tri-level:
720p/50/59.94/60 (SMPTE 296M)
1080p/23.976/24/25/29.97/30/50/59.94/60 (SMPTE 274M)
1080i/23.976/24/25/29.97/30 (SMPTE 274M)
1080PsF/23.976/24/25/29.97/30 (SMPTE RP211)

Word Outputs

Connector type: BNC connector
Output level: 1.0–3.5Vp-p (can set by 0.5V steps in menu)
Output impedance: 75 Ω
Supported frequencies:
32/44.1/48/88.2/96/176.4/192 kHz
11.2896/12.288 MHz (Super Clock, only connectors 11/12)
(−4/−0.1/0.0/+0.1/+4% PULL UP/DOWN supported only when 48/96/192 kHz selected)

AES 3/11 Outputs

Connector type: XLR-3-32 (1: GND, 2: HOT, 3: COLD)
Output level: 2.5 Vp-p
Output impedance: 110 Ω
Format: AES11-2003, AES3-2003, IEC60958-4
Supported frequencies:
32/44.1/48/88.2/96/176.4/192 kHz

SPECIFICATIONS (cont)

S/PDIF Outputs

Connector type: RCA pin jack
Output level: 0.5 Vp-p
Output impedance: 75 Ω
Format: IEC60958-3 (S/PDIF)
Supported frequencies:
32/44.1/48/88.2/96/176.4/192 kHz
(−4/−0.1/0.0/+0.1/+4% PULL UP/DOWN supported only when 48/96/192 kHz selected)

Alarm Output

Connector type: 6-pin Euroblock connector
Output format: Open collector
Output impedance: 10 Ω
Resistance: 20 V
Maximum current: 50 mA

Performance

Internal oscillator
Type: OCXO (oven-controlled crystal oscillator)
Permitted frequency deviation: ±0.01 ppm (Adjusted value when shipped new from the factory)
Frequency temperature characteristics: ±0.05 ppm (0 to 40 °C)
Long-term frequency stability: ±0.005 ppm (daily)
±0.5 ppm (annually)

General / Power supply

AC: 100-240 V, 50-60 Hz
Power consumption: 14 W
Dimensions (W x H x D): 19” x 1.76” x 11.8”(482.6 x 44.9 x 300.5 mm)
Weight: 7.3 lbs. (3.3 kg)
Operating temperature range: 32°-104° F (0°–40° C)