

TSG-490

SYNC/PATTERN GENERATOR



The TSG490 is the ultimate sync and test pattern generator designed to satisfy the requirements of analog, digital (Standard and High Definition) and mixed environments in production, broadcast and other operational applications. It provides all the timing and test signals, including Linear and Vertical Interval Timecode, that may be needed in any NTSC, PAL, HD, or mixed-standard installations.

The TSG490 can be configured to meet the requirements of levels of video applications. It can be initially supplied as a basic analog-only device. Then, as needs change with time, it can be upgraded provide configurable multi-standard reference signals, standard definition and high definition test patterns and black, AES tone, wordclock, embedded tone and more.

FEATURES

- Outstanding performance, stability and reliability
- NTSC / PAL / 625 / 525 switchable
- Comprehensive range of test patterns for all analog and digital applications
- Fully compliant with SMPTE 318M
- ± 2 field (NTSC)/ ± 4 field (PAL) timing range
- Multiple configurable reference outputs (NTSC/ PAL/Tri- Level Sync in all HD formats)



TSG-490 SPECIFICATIONS:

OUTPUTS	Analog blackburst	8
	Timeable Multi-standard output	3 (option)
	Composite video	2
	Component video	1
	SD serial digital pattern	2 (option)
	SD serial digital blackburst	2 (option)
	HD/SD serial digital pattern	2 (option)
	HD/SD serial digital blackburst	2 (option)
	Subcarrier	1
	Pulse	4

The 4 pulse outputs are programmable and can include:

- mixed sync • PAL
- mixed blanking • ID
- line drive • F 1 line
- field drive • wordclock

These outputs can also be individually set to be LTC or a 6Hz pulse.

AUDIO OUTPUTS	Analog stereo tone	
	AES Digital channels	4 (option)
	Wordclock (48kHz & 44.1 kHz)	1 (option)

TIMECODE OUTPUTS	LTC (user selectable rate)	4
	LTC 1 is at system rate. The others are system/24Hz VITC (selectable)	

BLACKBURST OUTPUTS	fsc stability:	±1Hz over temp. range
	SCH phase:	0 degrees ±5 degrees
	Return loss:	>35dB to 5 MHz

SUBCARRIER OUTPUT	Frequency: (PAL)	4.43361875MHz
	Stability:	±1Hz over temp. range
	Amplitude:	1Vp-p
	Return loss:	>35dB to 5 MHz

GENLOCK	H range:	4 fields (PAL).
	Subcarrier:	360 deg
	Resolution:	<0.5 degrees of subcarrier

PULSE AND PATTERN OUTPUTS Signals: meet or exceed relevant SMPTE, CCIR and EBU specifications

TEST PATTERNS Selected directly from the front panel:

- Color bars (100%, 95%, 75%, EBU, SMPTE, Split red)
- checkerboard • 50Hz square • pluge
- grey scale • APL (87.5%, 12.5%) • circle
- multi-test • pathological • sweep
- multi-burst • pulse and bar • bow-tie
- legal ramp • flat fields (white, black)

Further test patterns are available via an on-screen menu system.

VIDEO INPUT	75Ω Looping reference
REMOTE CONTROL	D9 RS232 10Base-T Interface

CONFIGURABLE MULTI-STANDARD OUTPUT OPTION
This option provides 3 additional outputs, each of which can be configured to be NTSC Blackburst, PAL Blackburst or HD Tri-level sync. Each output can be timed with respect to the main blackburst and pattern outputs to ±4 fields (NTSC or PAL).

MECHANICAL
Height: 1.7" (1U) Width: 19" rack mounting
Depth: 15" (overall)
Weight: 15.4lbs. shipping wt.

ORDERING INFORMATION
TSG490 PAL/NTSC SPG
OPTIONS
HD402 Multi-Standard Output option
HD408 HD/ SD Pattern & Black Generator
SD411 SDI output option
GP201 GPS reference input
SR406 10 MHz Reference Input
NT421 10Base-T Interface

CO-490 AUTOMATIC SPG CHANGEOVER UNIT

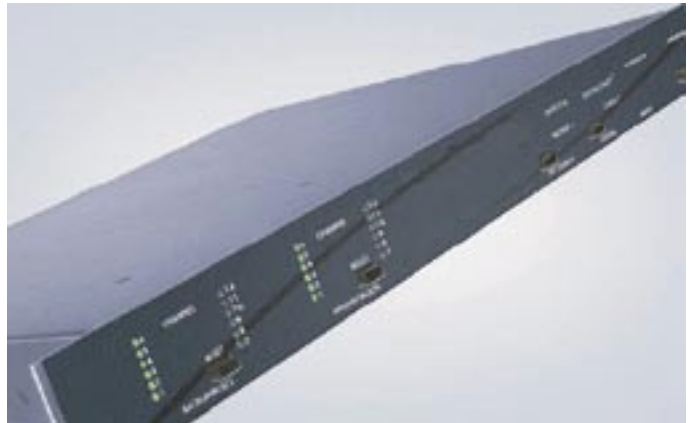
ADDITIONAL FEATURES

- 4 LTC (standard & offset) or pulse outputs (User programmable)
- VITC on all outputs (User Select)
- Analog stereo tone output with programmable interrupt
- User programmable text ID (3)
- Animated text ID
- Embedded audio

CO-490 CHANGEOVER UNIT

The CO-490 is a universal, modular automatic SPG changeover unit. It works in conjunction with the TSG-490 and can also easily be incorporated into any system currently containing other SPGs or test pattern generators.

The CO-490 accommodates up to 12 channels where channel 1 is a measured channel, 2 - 6 can be additional measured channels and 7 - 12 can be either measured or slaves. To allow for mixed format requirements and offer maximum flexibility, each measured channel can be set to measure analog blackburst, SDI video, or AES/EBU audio (75ohm) .



- Up to 12 channels in 1U
- Manual override facility
- Front panel audible and visual fault indication
- Slave channels switch when measure channel switches
- Measure channels always report errors even when not selected to switch
- The error report is persistent and is only reset by the user
- Measure channels can measure blackburst, SDI video, HDTV tri-state sync, Timecode, or AES/EBU audio

SPECIFICATIONS

INPUT (PER CHANNEL)
 OUTPUT (PER CHANNEL)
 CONTROLS AND INDICATORS

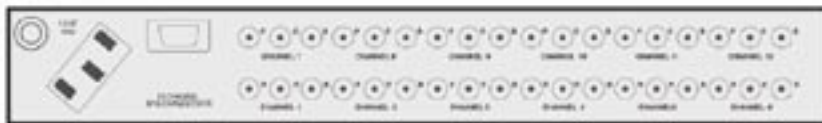
Primary (terminating BNC) Backup (terminating BNC)
 BNC (single)
 Panel lock/Enable: button and LEDs Status: LED Control: button and LEDs
 Sync source: button and LED's Primary faults: button (for reset) and LED's
 Backup faults: button (for reset) and LED's

CHANGEOVER THRESHOLD

Analog blackburst -- Sync: 4.86dB, Burst: 4.86dB
 Serial digital video: 4.86dB
 AES/EBU audio: 4.86dB
 HDTV tri-state sync: 4.86 dB
 Timecode: 4.86dB

RETURN LOSS
 ISOLATION
 DETECTION AND SWITCHING DELAY
 MECHANICAL

Better than 36dB @ 4.43 Mhz all channels
 Better than 60dB, both directions on all channels
 100ms
 Height: 1 rack unit
 Width: 19" rack mounting
 Depth: 15" (overall)
 Weight: 17.6 (packed)



ORDERING INFORMATION

- CO490 1U frame, PS, (1) measure and (1) slave channel
- MC490 CO490 Measure channel
- SC490 CO490 Slave channel

