

# PAL Encoder

## RGB to PAL Video Encoder

The Calibre PAL Encoder is designed to convert component 15.625KHz/50Hz analogue video signals into composite PAL format (PAL B/G/I compatible). It can accept varying sync and signal formats including RGB, separate syncs, composite syncs and sync on green. The input signals are encoded into both Composite (CVBS) and YC(SVHS) signal types, the two outputs are independent of each other and may be used simultaneously.

By utilising solid-state filters and internal timing circuits which are locked to the internal colour subcarrier crystal oscillator, it has been possible to realise a compact encoder with good accurate signal performance, output stability and no need for periodic realignment.

The compact design allows the Encoder to be housed in a very robust and space conscious extruded aluminium case, self contained with its mains power supply, well suited to the rigours of industrial and professional applications.

The Encoder can operate with various RGB signals types, selection being via a front panel DIL switch. It can accept composite sync between 250mV and 5V pk-pk, analogue or TTL levels; separate H&V syncs at 5V/TTL levels or sync on green. Sync type detection is automatic in RGB mode with sync on green having lowest priority. 75 Ohm termination of each input is separately switchable.

There is an internal chroma band notch filter on the composite output, this is normally used to reduce cross coloration caused by luma content in the chroma frequency band. It can be disabled via a DIL switch on the front panel.



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### SIGNAL SPECIFICATIONS

#### Signal Input

5 BNC connectors on the rear panel. RGB and syncs. Switchable 75 ohms termination on each input. Note - all unconnected inputs must be terminated for correct operation. If the RGB signals have previously been encoded and then decoded it is important that there is minimal residual chroma subcarrier information present since this could cause random colour loss from the encoder.

#### RGB Specification

R,G,B 0.7V pk-pk for 75% EBU bar. Maximum recommended signal input for correct operation 1.0V pk-pk.

#### Sync Specifications

Line frequency 15.625KHz, field rate 50Hz.  
Composite sync via H/S BNC 250mV-5V pk-pk, positive or negative sync polarity. Composite sync may be AC or DC coupled.  
Separate H & V syncs via H/S and V BNCs. 5V (TTL) levels. Positive or negative sync polarity. Separate syncs must be DC coupled and positive with respect to sync ground.  
Sync on Green/sync on Y. 0.3V pk-pk negative polarity.  
Selection of composite/separate syncs is automatic. Sync on green detection is automatic (it will only be used if composite/separate sync cannot be found). Only one sync type should be connected at any one time for correct operation of the encoder.

#### Timing Control

All internal timings and encoder filters (with the exception of the chroma band notch filter) are controlled directly from the subcarrier oscillator within the encoder. This ensures that drifting of filter frequencies and timings is unlikely. It is possible to control certain timings with respect to the start of the line sync pulse. A small screwdriver operated pre-set is accessible via the front panel which varies the start of the chroma burst between 5.4uS and 7.0uS from the leading edge of the line sync. (A longer delay can be set but correct operation cannot be guaranteed). This control is pre-set to 5.5-5.6uS by Calibre. The main application for moving the position of the burst is to cater for certain sync on green signals where incorrect clamping and/or loss of colour can occur. Since the clamp pulse is fixed at 1.5-2uS previous to the start of the chroma burst it is possible to effect correct clamping and stable colour on many non standard input signals by varying this timing control. Although the output signal timings will no longer strictly adhere to the CCIR601 standard, most colour monitors (including all Calibre displays) and VCRs are able to cope with the signal produced. If adjustment is not necessary the timing control should be left set between 5.4uS and 5.7uS (5.4uS is the minimum setting).

#### Output 1

Composite PAL encoded video (CVBS) via a signal BNC on the front panel. Typical output level is 0.7V pk-pk video (positive) plus 0.3 pk-pk negative sync when terminated at 75 ohms, for an RGB input signal of 0.7V pk-pk. Chroma band notch filter in luma signal path can be enabled/disabled via front panel DIL switch. Output 1 is independent from Output 2.

#### Output 2

YC (SVHS) PAL encoded video via a 4-pin mini-Din (SVHS style) connector. Typical outputs levels are 0.7V pk-pk luma (positive) plus 0.3V pk-pk negative sync (Y output) and 0.6V pk-pk chroma (C output) when terminated at 75 ohms each, for an RGB colour bar input signal of 0.7V pk-pk. The chroma band notch filter for Output 1 does not affect Output 2.

#### Power Requirements

220/240V 50-60Hz AC. Power consumption 2W typical, 6W maximum. 110VAC available to order.  
Dimensions 49mm depth 108mm width 260mm length excluding connectors/fixings

**For further information on the RGB-PAL Encoder or any other Calibre product contact:-**

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