

# MicroVideo

## FRS 300 HD/SD frame/line sync

### Features

The FRS 300 Synchroniser is a single eurocard size module that fits in Microvideo 1U or 3U rack mounting frames. It is designed to synchronise SD and HD Serial Digital Video signal to an analogue timing reference. The FRS 300's ability to correct any timing problems makes it ideal for broadcast engineers who need to bring untimed HD or SD video into their system. The input video may be completely non-synchronous or may simply need a timing adjustment.

The FRS 300 provides three serial digital outputs with low output jitter. EDH is inserted into the output serial data stream and provides full frame synchronisation with adjustable horizontal, vertical and continuously variable subpixel timing.

The FRS 300 provides for up to a frame delay with respect to the SDI input. All settings are protected in the case of power failure with the primary output protected by relay bypass. All ancillary data is passed through untouched.

Timing is taken from an external analogue reference and will automatically synchronise sources between 0 and 2 fields, fixing any incorrect frame rates plus any delays. Inputs, either SD or HD can be referenced to any analogue tri-level or Black Burst syncs.

The FRS 300 can be used to avoid picture disturbances for upstream switching of inputs between mistimed sources that occur in the vertical blanking.

### At a glance

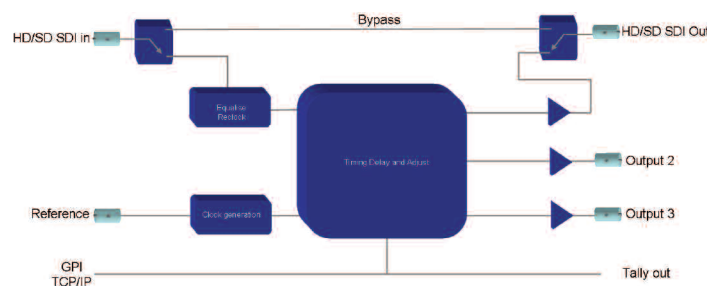
- 1 HD/SD SDI input and 3 HD/SD SDI reclocked outputs
- Relay bypass maintains primary feed on loss of power
- Full control and status monitoring through card edge LED's
- Alarm generation
- Remote control and monitoring



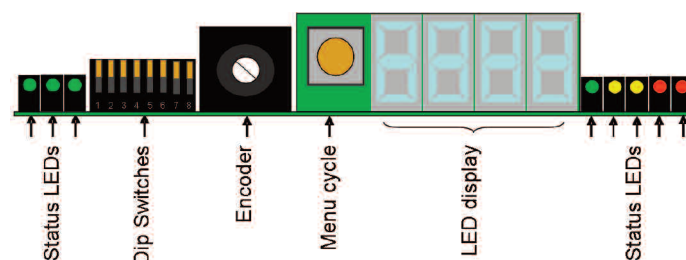
### Applications

- broadcast centers
- production
- post production
- transmission

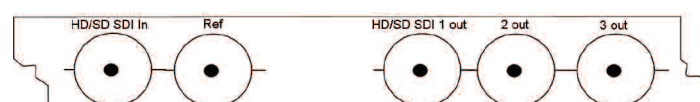
### Block Diagram



### Card-edge Controls



### Rear module



## Input

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SD/HD Serial Video	SMPTE 425M (3Gb/s) SMPTE 259M (270Mb/s) SMPTE 292M (1.5Gb/s)
Standard	up to 1080p/60
Number of Inputs	1
Equalization	Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss	> 10dB up to 3Gb/s, >15dB up to 1.5Gb/s

## Output

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HD Serial Video	As per input
Standard	As per input
Number of Outputs	3 (1 relay bypass protected, 2 broadcast quality monitoring outputs)
Signal Level	800mV nominal
DC Offset	0V $\pm$ 0.5V
Rise and Fall Time	90ps nominal for HD 3Gb/s, 600ps nominal for SD 270Mb/s
Overshoot	< 10% of amplitude
Return Loss	> 10dB up to 3Gb/s, > 15dB up to 1.5Gb/s
Wideband Jitter	< 0.2UI

## Miscellaneous

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Weight Approx	175g
Operating Temp	0 °C to +50 °C ambient
Dimensions	16 x 100 x 237 mm (HxWxD)
Electrical	Voltage +5Vdc

## Controls

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H adjustment up to full line width  
Freeze or go to Black screen on loss of input  
Disable Freeze/Black  
Pass / Blank VBI data  
Pass / Blank ancillary data

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## Frames

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FR1U-10	Rack mounting 1U frame with single PSU and 6 slots for Series 300 cards
FR10-20	Rack mounting 1U frame with dual PSU and 4 slots for Series 300 cards
FR3U-10	Rack mounting 3U frame with single PSU and 15 slots for Series 300 cards
FR3U-20	Rack mounting 3U frame with dual PSU and 15 slots for Series 300 cards