

**A low-jitter HD/SD Sync Generator for the Brainstorm DCD-8**  
**The latest high resolution video standards**  
**Combined with the DCD-8 high precision digital audio clocks**



The VSG-4 generates analog tri-level and bi-level sync signals for HD and SD video applications. It is designed as an option for the Brainstorm DCD-8 Word Clock Distriplalyzer. The combination of the DCD-8 and the VSG-4 delivers a complete solution for all sync requirements in the post-production, recording and broadcast environments.

Up to 4 different sync formats can be generated simultaneously through the 4 BNC outputs, 2 HD and 2 SD. The VSG-4 operates either as a master sync generator or genlocked to any of the references available to the DCD-8: Video (HD or SD), Word Clock, Digital Audio (AES/EBU, S/PDIF, FireWire, ADAT) or GPS.

When genlocking, the output rates can be different from the reference rate, while still maintaining phase coherence. For example, 30 and 24 or 23.976 and 29.97 will be correctly aligned.

By making use of the DCD-8's B Domain PLL, the VSG-4 provides stable HD clock rates over long periods of time.

The VSG-4/DCD-8 combination brings a great amount of flexibility. Audio can be locked to video or vice-versa. Many different rates can be generated simultaneously. Most importantly, a single sync reference can run your whole audio/video installation.

HD OUTPUT FORMATS			SD OUTPUT FORMATS	
720p/23.976	1080i/25	1080p/23.976	525i/29.97	NTSC
720p/24	1080i/25 295M	1080p/24	525i/30	monochrome
720p/25	1080i/29.97	1080p/25	625i/23.976	slow PAL
720p/29.97	1080i/30	1080p/29.97	625i/24	slow PAL
720p/30	1080sF/23.976	1080p/30	625i/25	PAL
720p/50	1080sF/24	1080p/50		
720p/59.94	1080sF/25	1080p/50 295M		
720p/60	1080sF/29.97	1080p/59.94		
	1080sF/30	1080p/60		

SPECIFICATIONS				
<b>No of outputs:</b>	4 (2 SD + 2 HD)		<b>Waveforms:</b>	All rise and fall times per their respective standards
<b>Standards:</b>	1080	SMPTE 274M, RP211, 295M	<b>References:</b>	Video (HD & SD), WC, AES, S/PDIF, FireWire, ADAT, GPS, Internal crystal
	720	SMPTE 296M	<b>Connectors:</b>	BNC - 75Ω - DC coupled
	NTSC	RS170A	<b>Form Factor:</b>	2" x 5.4" PCB - option for Brainstorm DCD-8 only
	PAL	Rec ITU-R BT.470-6	<b>DCD-8 domain:</b>	When generating HD sync, the VSG-4 uses the B Domain on the DCD-8.
<b>Output Levels:</b>	Tri-level	600mV p-p into 75Ω (+/-300mVDC sync tip)		
	NTSC	429mV p-p into 75Ω (-286mVDC sync tip)		
	PAL	450mV p-p into 75Ω (-300mVDC sync tip)		

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