

SPECIFICATION FOR DUAL CHANNEL DIGITAL VIDEO EFFECTS GENERATOR CUM SWITCHER

SPECIFICATION No.: SD 2002/296

Dated: 21.8.2002

1. Scope:

The specifications lays down the performance requirement of a PAL standard broadcast quality Dual channel digital video effect generator cum Switcher capable of producing various effects such as 2D, 3D Linear and Non-linear effects, recursive effects, and lighting effects etc. The intended application for the system is in live production in studios, OB vans and also in A/B roll post-production environment.

2. General:

- 2.1 The equipment is to be used as a tool for producing various effects by manipulating the picture in a post-production as well as in live environment.
- 2.2 It should be possible to produce various 2D, 3D standard effects, non-linear effects, recursive effects lighting effects etc.
- 2.3 It should have built in wipe generator, luminance/Chroma and down stream keyer facilities etc.
- 2.4 Necessary system interfaces for video editor should be available so that the effect generator can be used in conjunction with the editor.

3. Essential features:

- a) The DVE cum Switcher should be capable of producing per channel the 2D & 3D effects, standard effects, recursive effects, non linear effects, lighting effects etc. such as location, compression, rotation, perspective, page turn, sphere, roll, flip, border, drop shadow, posterization, solarization, mosaic ripple, split, split-slide, trail, lighting effects, and high-lights etc. DVE effects should include push in & push out 3-D effects giving true two channel effects.
- b) The equipment should have anti-aliasing filter to prevent aliasing noise due to image compression.
- c) The DVE cum Switcher should have at least three independent layers of video.
- d) The DVE cum Switcher should employ broadcast quality 4:2:2 signal processing throughout to deliver full Bandwidth performance.
- e) The DVE cum Switcher should have built in wipe pattern generator along with modifier and capable to fit a compressed image in a Wipe pattern. It should have built in down stream keyer, luminance and chrominance keyer also.
- f) Necessary system interfaces for connecting editing control unit should be available in the DVE cum Switcher.
- g) The Control panel of DVE cum Switcher should have LCD/LED display to give current status of the equipment.

- h) The DVE cum switcher should have built in colour back ground, black and matte generator.
- i) The switcher should have minimum 8 directly accessible serial component digital video SDI inputs from the control panel apart from black and colour background. The main frame should directly accept serial digital inputs (SDI).
- j) The DVE cum switcher should have auto as well as manual transition facility.
- k) It should be possible to preview different sources and various effects created on them.
- l) It should have tally out for tally light indication of on-air source via tally indicator distributor.
- m) It should also have on air indication facility.
- n) The DVE cum switcher should have standard serial interface ports (RS 422) for editors, external DVE etc. It should also have 8 GPI inputs & 8 GPI outputs.
- o) The Switcher Electronics should be 19" standard rack mountable.
- p) The tenderer must give user list to whom the offered equipment has been supplied along with all the addresses, telephone numbers and e-mail IDs etc. Doordarshan will be free to inquire directly from the user about the performance of the equipment.

4. Technical specifications

4.1 Video Inputs		
S.No.	Type	Specification
	Digital	270 Mb/s, 75 Ohms BNC X 8 conforming to ITU 601 and 656
	REF	1.0 Vp-p, 75 ohms, BNC (loop through), Video or Black burst

4.2 Video Outputs		
S.No.	Type	Specification
1.	PGM Output	SDI 270 Mb/s, 75 Ohms, BNC (2 or more) conforming to ITU 601 and 656
2.	Preview Output	Analogue Component or Composite, BNC
3.	Reference	1.0 Vp-p, 75 ohms, BNC, 3 or more, Video or Black burst

4.3 Video characteristics & General		
S.No.	Parameter	Specification
1.	Internal Processing	4:2:2 (Sampling frequency Y : 13.5, C : 6.75 MHz)
2.	Quantization	8 bits or more
3.	Number of channels	2
4.	Power supply	AC 230 V, 50 Hz.
5.	Operating Temperature	5 to 40 °C

5. COMPLIANCE

- 5.1 A point by point compliance statement from the principal manufacturer in respect of all the points laid down in this specification is to be enclosed along with the offer in the format given below.
- 5.2 Offers may not be accepted if the compliance statement is not signed by the manufacturer.

Sr. No of DD specs.	DD specification	Compliance (Yes/No)	Performanc Fig. Eqpts. Offered.	Deviatio ns, in case of non-complia nce	Optional items if any required to make the system Compliant to DD specs.	Features in the sys. Offered Which exceed DD specs.

- 5.3 Mere signature on a copy of our specification shall not be accepted as a compliance statement. Compliance statement in the format mentioned below shall only be accepted.
- 5.4 The manufacturer should also record the performance figures of their equipment offered in the quote for which the compliance statement is enclosed.
- 5.5 The figures so mentioned should be supported by record of these in the technical literature enclosed with the tender.
- 5.6 Offers without the compliance statement may be rejected.
- 5.7 Any deviation from the specification detailed in the compliance statement is to be highlighted separately.

6. ACCESSORIES & OPTIONAL ITEMS

- 6.1 All the essential accessories such as Control cables, connectors, power cables etc. should be separately quoted in the offer. Firms should quote for the cables in per meter length along with connectors.
- 6.2 Any other items, which are not covered in the above specification and if the firm feels it is necessary to complete the system, must also be quoted separately as an optional item. Firm must provide enough details about

such optional item to decide its utility.

7. SPARES

The tenderer should quote for all the essential spares that are required for the smooth functioning of the system at least for three years after the expiry of the guarantee period. The total cost of spares should not exceed to 5% of total value of the equipment. A list of essential spares should be included in the offer. The firm in writing should ensure availability of spares for a minimum period of 5 years.

8. DOCUMENTATION

The equipment should be supplied along with one copy each of the technical Operation and Maintenance manuals. One copy of the above manuals should be supplied along with the tender for technical evaluation of the equipment, without which tender will be rejected with the sole responsibility of the tenderer.

9. GUARANTEE

The equipment should be guaranteed for two years of trouble free operation. Any failure within this two years of operation should be replenished free of cost.

10. TRAINING

Operational and Maintenance training for two Engineers per unit will be carried out at the designated location in India. One experienced Instructor from the manufacturer is required to be deputed to India for imparting training to Doordarshan Staff for five working days. The complete cost towards this training should be quoted separately.

11. INSPECTION

One Engineer from Doordarshan will inspect the system at the manufacturer's factory. The cost toward this will be borne by the Doordarshan.

12. DEMONSTRATION

The tenderer may be asked to demonstrate the complete system as a part of technical evaluation of the offer.