

PRASAR BHARTI
BROADCASTING CORPORATION OF INDIA
DIRECTORATE GENERAL: DOORDARSHAN

**SPECIFICATIONS FOR DIGITAL DUAL SYNC PULSE GENERATOR WITH
AUTO CHNAGEOVER UNIT**

Specifications No.: SD 03/2010
Dated: 19.5.2010

1. SCOPE:

The specifications aim at putting forth the required performance characteristics of Digital Dual Sync Pulse Generator with Auto-Change Over Unit for use in Serial Digital Component environment in Digital broadcast Studio set-up in Doordarshan. The unit shall have to work either as a Master Generator or for its Slave Mode operation by Genlocking the unit, depending on the situation.

2. GENERAL:

- 2.1 **The offered equipment should be from an internationally reputed manufacturer and the quoted model should be field proven and in use by leading broadcasters in various continents of the World. The bidder should essentially submit the list of the broadcasters to whom the quoted model has been supplied.**
- 2.2 It should confirm to ITU-R BT 601; SMPTE 259M, 625/50 Standard.
- 2.2 It should be operationally simple and precise and have long term stability.
- 2.3 It should provide the Analogue Black Burst, SD Black & Digital Test signals like colour bar etc.
- 2.4 The unit should be capable of working in slave mode also.
- 2.5 The SPG system should have high noise immunity.
- 2.6 It should be possible to access the selection of Internal / External Reference, Genlock and Sync Timing Preset and other essential controls from the front panel selection switches.
- 2.7 The system should be complete in all respects for proper working.
- 2.8 Specifically, Dual SPG with auto changeover unit should be such that each SPG and Auto Change Over is standalone and should not require PC for its configuration and operation.
- 2.9 Each unit should be mountable in 19" (inch) rack frame.
- 2.10 It should be possible for the two SPG units to work with automatic change over unit without any matching difficulty.

Specifications for Digital Dual SPG with ACO_ SD 03/2010 Dt. 19.5.2010





- 4.1.2 Signal : PAL; Black Burst; 300 mV, ± 6 dB,
S/N ratio > 40 dB
- 4.1.3 Return loss : Better than 40 dB upto 5 MHz

4.2 Analog Black Burst Outputs:

- 4.2.1 Format : PAL
- 4.2.2 F_{sc} stability : < ± 1 Hz over temp. range 0°C to +40°C
- 4.2.3 SCH Phase : 0 degrees ± 5 degrees
- 4.2.4 Output Connector : BNC
- 4.2.5 No. of Outputs : Four or more

4.3 Serial Digital Video Outputs

- 4.3.1 Standard : Conforming to ITU-R BT601; SMPTE 259M, 625/50
- 4.3.2 Ref. & Test Signal : Colour bar, Black, SDI checkfield, Bow tie pattern, Multiburst, Ramp, Active Picture Marker.
- 4.3.3 Coding/ Resolution : 10 bit or better
- 4.3.4 Bit rate/ Format : 270 Mb/s; scrambled NRZI
- 4.3.5 Amplitude : 800 mV $\pm 10\%$
- 4.3.6 Rise & Fall times : < 1.5 ns.
- 4.3.7 Jitter : < 0.2 UI
- 4.3.8 Return Loss : 15 dB 5 to 270 MHz or better
- 4.3.9 Output Impedance : 75 Ω
- 4.3.10 No. of outputs : 02 or more (SD Black/Bar) and
02 or more (SD Test signals).
- 4.3.11 Output Connector : BNC

4.4 Serial Digital Audio Outputs

- 4.4.1 Standard : AES3; SMPTE 276 M
- 4.4.2 No. of audio Channel : 4, 2 AES/EBU audio pairs
- 4.4.3 Sample rate : 48 kHz locked to video
- 4.4.4 Connector : 2 BNC unbalanced out or more




4.5 Automatic Change Over Unit For Digital SPG Specified

4.5.1 Input & Output

4.5.1.1 Return Loss	:	30 dB to 10 MHz or Better 14 dB 10 to 270 MHz or Better
4.5.1.2 Cross Talk	:	< - 60 dB upto 10 MHz < - 30 dB 10 to 200 MHz < - 15 dB 200 to 360 MHz
4.5.1.3 Connectors	:	BNC

4.6 Power Supply & General

4.6.1 Power Supply	:	230 V AC \pm 5%, 50 Hz
4.6.2 Power Consumption	:	Less than 160 Watt (for the complete set of 2 nos. SPG & 1 no. C/O unit)
4.6.3 Operating Temperature:		0° C to + 40° C or Better
4.6.4 Storage Temperature	:	- 20° C to + 60° C or Better
4.6.5 Size & Mounting	:	Standard 19" rack mounting for each unit

5. COMPLIANCE

- (a) Any substandard equipment included in the offer may cause the rejection of complete offer with the sole responsibility of bidder.
- (b) The firm should provide the offered un-priced bill of material in electronic form also in addition to the hard copy for ease of technical evaluation.
- (c) **A point-by-point compliance statement from the principal manufacturer in respect of all the points laid down in these specifications is to be enclosed along with the offer in the format given below. Mere signature on the copy of the specifications shall not be accepted as a compliance statement.**

The figures so mentioned should be supported by record of these in the technical literature enclosed with the tender and reference to the page number of enclosed literature for all features and technical specifications should be mentioned in the relevant column. Offers without the compliance statement or with incomplete compliance statement will liable to be rejected with the sole responsibility of the bidder. Any deviation from the specification detailed in the compliance statement is to be highlighted separately.



Sr. No of DD specs.	DD specs.	Compliance (Yes/No)	Performance Fig. of equipment Offered.	Reference to the Page Number of enclosed literature	Deviations, in case of non-compliance	Optional items if any reqd. to make the sys. Compliant to DD specs.	Features in the offered Product which exceeds DD specs.

6. ACCESSORIES

All the accessories such as Power cables, connectors etc. required to complete the system should be offered by the firm and **the firm should certify the completeness of the system in all respect.** All the optional items should be quoted separately. Firm must provide enough details about such optional items to decide its utility.

7. DOCUMENTATION

One set of printed technical and operation & maintenance manuals for all the equipments are to be provided on non-returnable basis along with the tender to facilitate the technical evaluation, otherwise the tender is liable to be ignored. The successful bidder will have to supply one set of printed operation, service and maintenance manuals with respect to each equipment.

8. GUARANTEE

- (a) The system should be guaranteed for two years of trouble free operation from the date of supply. In case of any equipment failure including software and hardware within this period, the same shall be rectified or replaced free of cost to Doordarshan.
- (b) The guarantee should cover all hardware, software and modules of the complete system.

9. DEMONSTRATION

If necessary, the firm may be asked for demonstration of the offered system as part of the technical evaluation. In such case the firm will have to make suitable arrangement for the demonstration of the offered system at Doordarshan Bhawan, New Delhi, on notice of 7 days. Accordingly the firm should be in readiness for demonstration on a notice of 7 days.

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10. INSPECTION

The equipment shall be subjected to inspection by Doordarshan officials at New Delhi.

11. ENCLOSURES

The bidder must necessarily submit the following enclosures along with the technical bid:

- (a) Compliance statement with respect to all the points of the specifications duly signed by the OEM.
- (b) The reference to the page number of enclosed literature for all features and technical specifications should be essentially mentioned in the relevant column of the compliance statement.
- (c) Technical manuals/Detailed technical literature/catalogues for all the offered products for substantiating the model no. and technical specification.
- (d) **Model specific User list of the offered product.**
- (e) Any other document mentioned elsewhere in the tender document.

The tender is liable to be rejected in the absence of the above enclosures with the sole responsibility of the bidder.



BILL OF MATERIAL

Sl. Nos.	Detail of Items	Qty.
1.	Sync Pulse Generator with 19" rack mount kit	62 Nos.
2.	Auto Changeover Unit with rack mount kit	31 Nos.
3.	Operation manual/User Guide/ Technical Manual/ Installation Manual etc.	31 Lots
4.	Service & Maintenance Manuals	31 Lots

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**EQUIPMENT ARE BEING PROCURED FOR THE FOLLOWING
DOORDARSHAN CENTRES**

Sl. No.	Zone	Location of Doordarshan Centre	Qty.
1.	North Zone (NZ)	Jammu	1 Set
2.		Chandigarh	1 Set
3.		Bareilly	1 Set
4.		Shimla	1 Set
5.		Allahabad	1 Set
6.		Mau	1 Set
7.	East Zone (EZ)	Daltonganj	1 Set
8.		Mujjafarpur	1 Set
9.		Ranchi	1 Set
10.		PPC Guwahati	1 Set
11.		Siliguri	1 Set
12.		shillong	1 Set
13.		Tura	1 Set
14.		Kohima	1 Set
15.		Itanagar	1 Set
16.		Imphal	1 Set
17.		Silchar	1 Set
18.		Dibrugarh	1 Set
19.		Aizwal	1 Set
20.		Agartala	1 Set
21.		Sambalpur	1 Set
22.	Gangtok	1 Set	
23.	South Zone (SZ)	Gulbarga	1 Set
24.		Pondicherry	1 Set
25.		Vijayavada	1 Set
26.		Portblair	1 Set
27.	West Zone (WZ)	Panaji	1 Set
28.		Raipur	1 Set
29.		Rajkot	1 Set
30.		Pune	1 Set
31.		Indore	1 Set
TOTAL			31Sets

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