



प्रसार भारती
PRASAR BHARATI
(Broadcasting Corporation of India)

दूरदर्शन महानिदेशालय
Directorate General: Doordarshan

दूरदर्शन भवन, कोपरनिकस मार्ग,
Doordarshan Bhawan, Copernicus Marg

नई दिल्ली - ११०००१
New Delhi - 110 001

File No. 19(2)2018-19E1 (P) TV

Dated: 25.06.2019

Subject: Draft Specification for Procurement of 64x64 HD/SD SDI Routing Switcher.

The Draft specification of the upcoming tender is enclosed herewith to offer comments, if any by due date at e-mail address ddpurchase401@yahoo.co.in or on following Address:

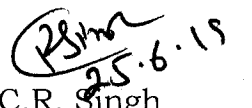
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Draft Specification : Procurement of 64x64 HD/SD SDI Routing Switcher.

Specification no: SD 12/2019 Dated 24.06.2019.

Due Date to offer Comments: **11.07.2019**

Encl.: As above


C.R. Singh
Assistant Director (Engg.)
For DG: DD

NOTE: - The prospective bidders is also be requested to submit their budgetary quote.

Specifications for 64x64 HD/SD SDI Routing Switcher

Specifications No.: SD 12/2019

Dated: 24.06.2019

1. SCOPE:

The specifications lay down the performance requirement of broadcast quality 64x64 HD/SD-SDI routing switcher along with associated equipment required for TV Studio/OB applications in Doordarshan network.

2. GENERAL:

- (a) Offered product should be from an internationally reputed manufacturer and the quoted model should be field proven and in use by leading broadcasters. The bidder should essentially submit the list of the broadcasters to whom the quoted model has been supplied. The tenders without the proper user list shall liable to be rejected.
- (b) The Bill of Material required is given in **Appendix-I**. The bidder is required to provide the complete list of items & accessories etc. offered to meet the specification requirement in the following proforma:

Sr. No.	Description / Name of the item	Make	Model	Part No., if any	Qty.
1.	2.	3.	4.	5.	6.

- (c) The list of Doordarshan centers for which the equipment are being procured is as given in **Appendix-II**.

3. ESSENTIAL FEATURES:

- (a) The offered routing switcher should accept HD-SDI and SD-SDI signals with all the embedded ancillary data including audio for routing and should route any of the input sources to any of the desired destinations.
- (b) The offered Routing Switcher should autosense the HD-SDI and SD-SDI standard signals.
- (c) The switching should take place in vertical blanking as per SMPTE RP-168.
- (d) The offered routing switcher should be modular in design.

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- (e) Routing Switcher should be gen-lockable with external reference sync signal.
 - (f) The offered product shall be 19" rack mountable and have redundant power supply unit.
 - (g) The offered Routing Switcher should also be equipped with redundant cross point and redundant controller and the same must be included in the offer.
 - (h) The routing switcher has to be offered with single bus and multi bus (X-Y) remote control panels.
 - (i) Each of the single bus RCPs should have dedicated button per input source. Further, the offered multi bus (X-Y) RCP should have dedicated buttons for destinations also.
 - (j) There should be visual indication on all the RCPs regarding the information of selected sources and destinations.
 - (k) All the RCPs should be interconnected by suitable interface with the main electronics via data interface such as S-bus, IP/Ethernet and RS-232/422 etc. either in a daisy chain or directly from main electronics for various control locations.
 - (l) Cable length between RCP & main frame can go up to 100 meters. The bidder should also quote for necessary control cable with matching connectors at both ends.
 - (m) The Routing Switcher should have non-volatile storage facilities for control information, so that in case of power supply failure, the status of the switcher output should remain unchanged when the power supply is restored.
 - (n) The offer should include a Control Software Application to enable the testing, alignment, remote monitoring, configuration and control of various parameters of the offered routing switcher. The necessary hardware and software interface required for the purpose should be offered **essentially**, if it not the part of standard configuration.
 - (o) The offered Control Software Application should be capable of labeling the sources & destinations with alpha numeric characters through a suitable GUI.

4. TECHNICAL SPECIFICATIONS:

The offered routing switcher has to be complied for the following technical specifications:-

Sr. No.	Parameter	Performance values
1.	Matrix size	: 64 x 64 HD-SDI and SD-SDI signal with all the embedded ancillary data including audio

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2.	SDI Input Equalization	:	Equalized for cable minimum 100 m @1.5 Gb/s & 250m @270 Mb/s for Belden 1694A or equivalent cable.
3.	SDI Output	:	Auto Reclocked
4.	Return Loss	:	≥15 dB @ 1.485 Gbps throughout the switching chain
5.	Reference input	:	Analog Black burst or Tri-level sync
6.	Standard	:	
(a)	HDTV	:	1920x1080/50/I (16:9 aspect ratio) conforming to SMPTE 292M and ITU 709 (CIF)
(b)	SDTV	:	576/50/I (16:9 and 4:3 aspect ratio) conforming to SMPTE 259M and ITU 601(CIF)
7.	Digital processing	:	
(c)	Sampling ratio	:	4:2:2
(d)	Sampling rate (Y/Cb/Cr)	:	For SD:13.5/6.75/6.75 MHz For HD:74.25/37.125/37.125 MHz
(e)	Quantization	:	10 bit or better
(f)	Video Data rate	:	HD-SDI: 1.485 Gb/s SD-SDI: 270 Mb/s
8.	Input/output Connectors	:	
(a)	SDI	:	BNC or HD BNC
(b)	Control	:	BNC or HD BNC, Mini XLR, RS-422 or GPI.
9.	Signal	:	
(a)	Input/output signal Level	:	0.8 Vp-p ± 10% across 75 Ω /BNC or HD BNC
(b)	SDI Output Jitter	:	SD-SDI ≤0.2 UI (10Hz) / ≤ 0.2 UI (1KHz), HD-SDI ≤1.0 UI (10Hz) / ≤0.2 UI(100KHz)
10.	Operating Temperature	:	5° to 40° Celsius
11.	Power Supply	:	230±5% Volts AC, 50 Hz

5. ACCESSORIES:

All the essential accessories like power cables, power supply units, software and connector etc. required to complete the system should be offered by the firm and the firm should certify the completeness of the system. All the optional items should also be quoted separately. The firm must provide enough details about such optional items to decide its utility.

6. SOFTWARE:

All the necessary software required for proper working of the system is to be supplied in original and should be licensed to Doordarshan with perpetual validity.

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7. COMPLIANCE:

- a) A point by point full compliance statement laid down in the specifications from the principal manufacturer is to be enclosed along with the offer in the format given below. Mere signature on the copy of DD 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.
1	2	3	4	5	6	7	8

- b) In addition to above, a separate point by point compliance statement duly signed by the bidder in respect of all the points laid down in the specifications should also be submitted along with the bid by the bidder in the above mentioned proforma.

8. TECHNICAL LITERATURE:

One set of technical manuals/brochures of the offered equipment are required to be provided along with the tender to facilitate the technical evaluation, otherwise the tender is liable to be ignored. The successful bidder will have to supply a set of technical, user and installation manuals.

9. DEMONSTRATION:

If necessary, the bidder may be asked for demonstration of the offered system as part of the technical evaluation. In such case the bidder will have to make suitable arrangement for the demonstration of the offered system at Doordarshan Bhawan, New Delhi, on notice of 15 days. Accordingly the bidder should be in readiness for demonstration.

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10. GUARANTEE:

- a) With reference to the clause no.8.2 of the "General Terms And Conditions (GTC)" under ANNEXURE-II of tender document, the complete system including all items/equipment should be guaranteed for **three years** of trouble free operation from the date of commissioning. In case of any item or equipment failure including software and hardware within this period shall be rectified or replaced free of cost to Doordarshan.
- b) The guarantee should cover all hardware, software and modules of the complete system.

11. DELIVERY PERIOD:

The delivery period will be 03 months.

12. INSPECTION:

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

13. ENCLOSURES:

The bidder must necessarily upload the following documents along with the technical bid:

- a) Compliance statement with respect to all the points of the specifications duly signed by the OEM should be submitted for offered equipment/item(s) in the proforma mentioned in clause no. 7.(a). 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.
- b) A separate point by point compliance statement duly signed by the bidder in respect of all the points laid down in the specifications for the offered equipment/item(s) in the proforma mentioned in clause no. 7.(b).
- c) Technical manuals/detailed technical literature/catalogues for the offered equipment/item(s) for substantiating the model no. and technical specifications.
- d) Model specific user list of the offered product(s).
- 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.



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Appendix-I

INDICATIVE BILL OF MATERIAL REQUIRED

Sr. No.	Item Description	Qty.
1.	64x64 HD/SD-SDI Routing Switcher with embedded ancillary data including audio along with redundant power supply unit, redundant cross points and redundant controller	2 Sets
2.	Multi bus (XY) Remote Control Panel with 50 meters of cable with matching connectors at both ends and required power adaptor	4 Sets
3.	Single Bus Remote Control Panel with 50 meters of cable with matching connectors at both ends and required power adaptor	10 Sets
4.	Operation manual/User Guide/ Technical Manual/ Installation Manual etc.	2 Sets
5.	Service & Maintenance Manuals	2 Sets

Appendix-II

EQUIPMENT ARE BEING PROCURED FOR THE FOLLOWING
DOORDARSHAN KENDRAS

Sr. No.	Zone	Location of Doordarshan Centre	Qty.
1.	North Zone	DD News, Delhi	2 Sets
		TOTAL	2 Sets