



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 28/08/2020

### INVITING QUOTATIONS for Bi-directional DC Powersupply

Ref.No. 

CEC	20-21	001	VJK	POWERSUPPLY	IOE
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 - **DUE DATE : 21.09.2020**

1. Quotations are invited in duplicate for the **Bi-directional DC Powersupply** in Two Bid System (specification attached in Annexure -1).
2. The Quotations are to be in **Two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. In case of import, the insurance & Freight charges should not exceed 6% of FOB value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-works pricing is considered.
10. **No Advance Payment will be made for Indigenous purchase.** 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. For Imports normally payment will be made by Letter of Credit only (**Terms 90 % Payment will be released against dispatch of shipping documents and 10 % will be released after satisfactory installation**). Sometimes The Rule 159 GFR may be allowed (i.e.) 30 % Advance Payment against B.G. (Bank Guarantee) and 70 % Payment after supply (All the B.G. Charges will be borne by the supplier only). **Demurrage charges (if any) will be borne by the supplier & it will be deducted from the balance 10%.** Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Yours faithfully,

Prof. V. Jagadeesh Kumar  
Head, Central Electronics Centre

HEAD

## Technical Specification for Bi-directional DC Power Supply, Quantity – 1 No

Bi-directional DC Power Supply			
SL.No	Description		Specification
1	Output Rating	Output Voltage	0 V to 500 V
		Output Current	-360A to +360A
		Output Power	-54kW to 54kW
		Output resistance	0 $\Omega$ to 1 $\Omega$
2	Line Regulation	Voltage	$\leq 0.01\%$ FS
		Current	$\leq 0.05\%$ FS
3	Load Regulation	Voltage	$\leq 0.02\%$ FS
		Current	$\leq 0.05\%$ FS
4	Resolution	Voltage	0.01V
		Current	0.01A
		Power	0.001kW
		Resistance	0.001 $\Omega$
5	Accuracy (within 12 months, 25 $^{\circ}$ C $\pm$ 5 $^{\circ}$ C) $\pm$ (%of Output + Offset)	Voltage	$\leq 0.02\% + 0.02\%$ FS
		Current	$\leq 0.1\% + 0.1\%$ FS
		Power	$\leq 0.5\% + 0.5\%$ FS
		Resistance	$\leq 1\% + 1\%$ FS
6	Modes		CV, CC, CP (Source & Sink)
7	Ripple (20Hz to 20MHz)	Voltage	$\leq 500\text{mVpp}$
		Current	$\leq 0.1\%$ FS RMS
8	Temperature co-efficient (% of output / $^{\circ}$ C + offset)	Voltage	50 PPM/ $^{\circ}$ C
		Current	200 PPM/ $^{\circ}$ C
9	Rise time & Fall time (full load and No load)	Voltage	$\leq 30\text{ms}$
10	Transient response time	Voltage	$\leq 2\text{ms}$
11	AC Input	Voltage	342 V to 528 V
		Current	$< 110\text{ A}$
		Power	$< 60\text{kW}$
		Frequency	47Hz to 63Hz
12	Efficiency		$> 90\%$
13	Power factor		$> 0.95$
14	Operating Temperature		0 $^{\circ}$ C to 40 $^{\circ}$ C
15	Protective function		OVP, $\pm$ OCP, $\pm$ OPP, OTP, power down protection, anti-islanding protection
16	Interface		Standard Built-in USB/CAN/LAN/digital IO communication interface and Optional GPIB/analog & RS232
17	Features		It should support (a) Control loop priority mode setting, (b) Built-in voltage curves complied with LV123, LV148, DIN40839, ISO-16750-2, SAEJ1113-11, LV124 and ISO21848 automotive standards (c) Photovoltaic I-V curves simulation function (d) Built-in function generator to support arbitrary-waveform generating, (e) Data saving with the shortest interval of sampling is 20ms (f) Battery simulation function



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