

TECHNICAL BID PROFORMA

Item Name: Eight Channel High Current and High Voltage Battery Cycler.

1.0 Bidder Eligibility Criteria:

I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content value	Reference, Page No.
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein.			
2.0	Bidder Eligibility Criteria-II	Compliance (Yes/No)	Reference Page No.	Remarks, If any
1	The bidder/OEM should have supplied at least 1 similar items to IITs, NITs, IISERs, CSIR Labs or other Govt. R&D organizations in the last 2 years, PO copies or installation certificates along with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation-			

3.0 Technical Compliance:

S.No	Specification	Complied/Not Complied	Reference No:
Technical Specifications			
1.	Number of channels required – 8		
2.	All channels should be capable operating in-parallel and should be able to control with a single software and computer		
3.	3. Channels should be capable of operating independently and with capability to parallel even number of channels.		
Voltage specifications			
	a. Voltage range: 0 V to 9 V or better		
	b. Voltage accuracy should be <0.01% at values < 1 mV		
	c. Measure resolution should be 50 μ V or better		
Current specifications			
	a. Should operate with current ranges between ± 15 A and ± 3 mA or better.		
	b. Multiple current ranges should be available		

	c. Measurement resolution should be 16 bit or better.		
	d. Current control accuracy should be 0.05% FSR or better		
	e. Each channel should be capable of operating at $\pm 15A$ or higher		
	f. Current measurement resolution should be less than 100 nA.		
	g. Paralleling capability should be availed where channels can operate in parallel to obtain higher current ranges. The cycler should be able to operate at a minimum current of $\pm 120A$ with all eight channel connected in parallel. Necessary accessories to connect channels in parallel should quoted.		
	h. Automatic current ranging during measurement should be available.		
	i. The data acquisition time should be less than 5 ms.		
Electrochemical Impedance:			
	a. The instrument should have inbuilt electrochemical impedance measurement capability		
	b. All eight channels should be able to access the impedance either while operating them alone or while connected in parallel.		
	c. Should be able to measure impedance in the frequency range of few kHz to few mHz.		
	d. Impedance analyzer should be inbuilt and no third party integration of frequency response analyzer should be made.		
	e. Cables with at least 2 m length should be provided for all channels. Connections should be possible with 2 or 4 terminal leads		
	f. USB interface or ethernet should be provided to communicate with PC.		
	g. A data acquisition system with all the computing facilities for controlling and collecting data		
	from the battery cycler should be provided.		
	h. A dummy cell to validate the channels should be provided.		
Software			
	a. All eight channels should be controlled independently using a single software		

	b. All eight channels should be able to operate in parallel and any of channels should be able to operate at any current/voltage ranges simultaneously		
	c. Should be able to operate in constant current, constant voltage, constant power and at any given C-rate.		
	d. Should be able to use user defined power profiles or current profiles to test batteries in real time conditions.		
	e. Should have options to carry out cyclic voltammetry		
	f. impedance control and measurement along with its fitting capabilities to be provided.		
	g. Software should allow integration of external devices.		
	h. Minimum one year onsite warranty from the date of installation of the products.		
	i. Any additional components required to meet the technical specifications above should be quoted		
	k. Installation and training onsite is required.		