Indian Institute of Technology Madras

I.I.T.P.O., MADRAS-600 036
STORES & PURCHASE SECTION

Form for Inviting Quotations

Ref.No.

Date: 10.10.17

CEC	VJAG	ENQY	DVC

Under Certificate of Posting

Dear Sirs,

DUE DATE: 26.10.17

1. Quotations are invited in duplicate for the DIGITAL VIBRATION **CONTROLLER** (specification attached)
2. The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty 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 F.O.R. Madras. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, farwarding 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. Goods should be supplied carriage paid and insurred.
10. Goods shall not be supplied without an official supply order.
11. 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,

cc

Head CEC

प्रोफे. वी. जगदीश कुमार
Prof. V. JAGADEESH KUMAR
अध्यक्ष / Head
केन्द्रीय इलेक्ट्रॉनिक्स केंद्र
Central Electronics Centre
आई आई टी मद्रास, चेन्नई-600 036
IIT Madras, Chennai - 600 036

Specification for Digital Vibration Controller Quantity : One		
1.0	**Digital Vibration Controller**	
1.1	**No. of channels**	4 Channel Controller. Expandable up to 16 channels. (There should be no Master and Slave Hardware. The Hardware boxes should be interchangeable).
1.2	**Built in power source**	Built in power source for IEPE type accelerometers.
1.3	**Fault indicators & safety features**	Control signal checks for input over load, open loop, loss of control signal, incorrect conditioning, transducer cable break indication etc on GUI PC.
1.4	**Test documentation**	Provision for taking the print out of the signal plots, test data set up parameters, test parameters, drive spectrum, last control etc.
1.5	**Power supply**	220V ± 10 %, 50 ± 2 Hz, Electric supply with Indian socket to be provided.
1.6	**Sample frequency**	Up to 52 KHz.
1.7	**Dynamic range**	>120 db and Digital tracking Filters.
1.8	**Computer Interface**	Ethernet Connection with a Speed of 1,000 base-T. The Controller should soft stop the test in case of PC communication failure (Hanging / disconnection / shut down...)
1.9	**Resolution**	24 bit
1.10	**Report generation**	Standard pre test, Post Test and Report formats/ templates to be provided.
1.11	**Total Harmonic Distortion**	< -105 dB
1.12	**Input Range**	+/–10 V peak
1.13	**Output Ranges**	+/- 10V
1.14	**Output Channels**	Two output Channels - One analog output (Drive) standard and COLA output.
1.15	**Tests Recovery**	The Software should be having provision to recover minimum of 20 last tests in case of power failure. Provision to recover the tests from where it was stopped and have the test time updated.
1.16	**Signal to Noise**	> 100dB
1.17	**Filtering**	Analog multiple pole filter plus a digital filter.
1.18	**GUI Format**	The Software/ GUI should have provision to open the tests in Tab format and should be able to open variable test modules in one window.
1.19	**Test Sequencer**	The Software should have provision for programming various tests and should be able to run the tests in the list sequentially with one click. (Sine Test 1 + Random Test + Shock Test 1+ Sine Test 2.....)
2.0	**Software for Vibration Controller**	
2.1	**Sine (Swept & fixed frequency) Test Types**	a) Swept Sine. b) Sine Frequency Dwell.
	Frequency Range	1 Hz to 4900Hz.
	Control Strategy	a) Single Channel. b) Average. c) Maximum. d) Minimum

	Sweep Definition	a) Number of Sweeps. b) Duration.
	Sweep Direction	a) Up only (in multiple sweeps). b) Down only (in multiple sweeps). c) Up and Down.
	Sweep Rate	a) Log – 0.1 to 10 Oct/Min. b) Linear – 0.1 to 100 Hz/Min.
	Control amplitude accuracy	+ 1 dB.
	Frequency Accuracy	Better than 1/100th of a Hertz.
	Drive signal	User definable maximum drive voltage from 0.5 V to 10 V pk.
	Definitions specific to Dwell, Resonance dwell tests	a) Provision should exist for multiple Dwell frequency definition within a single test. b) Configurable w.r.t: 1) Dwell duration. 2) Dwell range. 3) Dwell frequency. 4) Dwell phase. 5) Dwell level. c) Dwell mode: Manual OR Automatic.
	Breakpoint	Up to 1000 amplitudes of A, V, or D, constant or slope changes at defined frequencies. And Large readout.
2.2	**Random Frequency Range**	1 Hz to 4900Hz.
	Number of spectral lines	User selectable from 100 to 13000 lines of resolutions.
	Output signal	a) True Gaussian with minimum 3-sigma control. b) Provision for Drive clipping with the following user definable parameter: 1) Sigma level between 2 to 6. or 2) Drive voltage limit.
	Control Strategy	a) Single Channel. b) Average. c) Maximum. d) Minimum.
	DOF	2 to 1000
	Levels	200
2.3	**Classical Shock Pulse types**	a) Half Sine. b) Initial and Terminal Peak Saw tooth. c) Triangle.
	Pulse duration	0.1 m Sec to 60 Sec.
	Pulse Amplitude	1g to 500g.
	Pre and Post Pulse	Definable in Percentage or Peak g.
	Alarm/Abort	Alarm/Abort tolerances in terms of peak of peak error defined as percentage of maximum amplitude range 10% to 100%.
	Number of Pulses	1 to 1000.
	Duration between pulses	0.1 m Sec to 1000 sec.
	Output polarity	Positive or Negative.
	Output signal	User definable maximum drive voltage from 0.5 V to 10

		V pk.
	Delay	User defined functioned from 0 to 1000 sec.
	Inverting	Pulses can be inverted
3.0	**Resonance Track & Dwell**	
	Selection of Resonances	Select resonances from detection table at which to dwell/track
	Find Resonances	Automatic identifying of top 10 resonances.
	Phase Dwell	Dwell can be at constant frequency or a phase dwell.
4.0	**Additional Software's**	The Software should have provision to add additional Test Modules of Sine on Random, Random on Random, Sine On Random on Random, Sine on Sine and SRS without any requirement of Hardware change.
5.0	**Warranty**	3 Years Hardware warranty
6.0	**Standard Operating Procedure comprising of Troubleshooting Guide**	Should be provided.
7.0	**Calibration Certificate**	Calibration Certificate of Controller system traceable to NIST or other internationally recognised Calibration Agencies should be provided. As per ISO-17025.
8.0	**Demonstration**	The Supplier should demonstrate the Controller and its performance and the provision of all software modules as a part of Technical Evaluation/Clearance.

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