

**Electrical Engineering Department,
Indian Institute of Technology Delhi**

Date:11/01/2013

NIQ for purchase of “ Digital Storage Oscilloscope”

Sealed quotations are invited for purchase of one in number “Digital Storage Oscilloscope” with the following specifications:

Parameters	Specification
Bandwidth	200 MHz
Number of Channels	4 Fully Isolated & floating independent channels
Channel Architecture	All input fully insulated from each other and from ground.
Input Coupling	AC, DC with ground level indicator.
Rise time	2 ns
Real-time sample rate (Sampled Simultaneously)	1.25 GS/s/per channel (with all channels working together).
Input Voltage	Preferably CAT III 1000 V/ CAT IV 600V (Minimum CAT III 300V)
Float Voltage	Up to 1000 V RMS CAT II/600 V RMS CAT III from BNC to earth ground
Vertical resolution	8-bit.
Accuracy	$\pm 2.1\%$ of reading $+0.04 \times \text{range/div}$ for 5 mV/div to 100 V/div
Time base range	2 ns/div - 4 sec/div
Input impedance	1 M Ω $\pm 1\%$, around 14 pF ± 2.5 pF
Timing Accuracy	$\pm (0.02\%$ of reading)
Record length	Up to 10,000 samples per channel
Input sensitivity	2 mV-100 V/div
Trigger types	Free Run, Single Shot, Edge, Delay, Dual Slope, Video, Video Line, Selectable pulse width, N-Cycle & Non-interlaced
Glitch capture	8 ns peak detect on each channel
Display Screen	Minimum 135mm full colour LCD with LED backlight.
Waveform Mathematics	Add, subtract, and multiply waveforms
Waveform Frequency Spectrum	Required
Measurement	AC, DC, AC+DC Voltage & Current measurement PWM Voltage (AC & AC+DC) for pulse width modulated motor drive & Frequency Inverters Frequency, Phase (between any 2 inputs), Pulse width (+/-), Duty Cycle(+/-), dBV, dBm into 50 Ω & 600 Ω , Power Factor, Watts, VA, VA Reactive, Phase (Between any 2 Input)
Advanced Power & motor drive Function (Preferable)	Power Factor, VA, VA Reactive, V (PWM)AC & V(PWM)AC+DC for measurement on pulse width modulated motor drive and Frequency Inverters
Acquisition Mode	Single shot, Scope Record Roll, Glitch Capture, Pass/Fail




	Testing , Replay
ZOOM	Ranges from full record overview to zoom in up to sample level, at any record length
FFT	Window : Auto, Hamming, Hanning FFT Vertical Scale: Linear or Logarithmic (in volts or Current) Frequency Axis: Frequency Range Auto set as function of Time Base range of Oscilloscope.
Data recorder	Automatic data logging of 100 triggered records (screens) with date and time stamp. Store internally or to a USB device
Trend-plot	Multiple Channel Electronic Paperless Recorder, Graphically plots, Display & Store Result of up to Four Automatic Scope measurement.
Memory Save & Recall	15 Waveforms memories: Store Scope Trace waveform Data plus screen copy plus setup. Two Recording memories: 100Screen Replay Sequence/ Scope Record Roll Mode Recording/ Trend plot Recording of up to 4 measurements
Digital Persistence modes	Off/short/medium/long/infinite and Envelope mode
Waveform Limit Testing	Waveform reference with automatic Pass/Fail testing
Interface	USB Host and USB mini device port should be available on the side panel
Storage Temperature	-20°C to +60°C
Enclosure	IP 51 (Dust & Drip water proof) according to IEC529
Electrical Safety	1,000V CAT III/600V CAT IV (EN61010-1)
Size	Should not more than 290 x 200 x 80 mm
Weight	Not more than 3 Kg
Accessories	Min.200MHz,10X Voltage Probe for each channel with different channel color code
	Li-ion Battery with minimum 7 Hours Battery back-up
	USB to USB mini Cable, AC Power Adaptor with Power Cord, PC communication Software, Hard-sided Carrying case, Calibration Certificate, Hand strap (if hand-held), Hanging Strap (if hand-held).
	Multi-Language User Manuals on CD-Rom
Warranty	Three years on main instrument, one year on accessories

TERMS & CONDITIONS

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as "Technical Bid" and Financial Bid". Both the sealed envelopes should be sent in a single sealed envelope, with clearly marked as "Real time controller board for Power Electronics & Motor Control applications". The quote should reach the following address on or before **5/02/2013** upto **5:00 PM**.


Name : Prof. Bhim Singh


Address : Professor, Room No. II-118,



Deptt. of Electrical Engineering,
Indian Institute of Technology, Delhi
Hauz Khas, New Delhi-110016 (India)

2. Please quote prices at FOB/ CIF New Delhi, inclusive of installation charges.
3. Quote should be in Indian Rupees as well as US Dollars and to valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India.
5. Mention the warranty period. Also mention if there are additional prices for on-site warranty.
6. Mention if you can provide any technical support like training of IIT Delhi personnel at IIT Delhi or in your factory and providing a technical person for operation of the machine for the initial period of 2 years. Kindly mention about this in technical bid.
7. If the quote is being submitted by the representative of the Principals/manufactures themselves, a valid Agency ship/Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of the Principals should be enclosed.
8. The Institute reserves the rights to accept/reject any/all quotations without assigning any reasons thereof.
9. Complete set of manuals for the operation and servicing of equipment should be given. All circuit diagrams, other mechanical and electrical schematics must be provided to Main unit, sub systems and accessories.
10. Delivery as early as possible in weeks on receipt of PO.
11. Clearly specify the installation requirements – such as space, power, frequency, environment (Temperature and humidity) etc.
12. If the items quoted are proprietary in nature, please enclose proprietary certificate from the principals stating “Certified that ----- is a proprietary item of M/s ----- and no other manufacture make these items”.
13. If the bidder is Indian agent, the agency certificate should be enclosed.
14. Please produce compliance certificate for the specification.
15. Please ensure that the Indian agent has been enlisted with the Department of Expenditure, evidence may please be attached.
16. All bank charges payable in India are to buyer’s account and bank charges in seller’s country to seller’s account.


(Principal Investigator)


(Chairman, Purchase Committee)