

Department of Electrical Engineering Indian Institute of Technology Delhi

NIQ no. IITD/EE/PLN06-BEEN/IEC/MSC2

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Notice inviting quotations for dual channel Function Generator

Sealed quotations are invited for an Function Generator. The required specifications are given below. The purchase will be made through a two part bidding process. Technical and Financial bids have to be made separately. Complete technical information should be provided along with the Technical bid. Please refer to the Terms and Conditions on the next page for details on how and when to submit Technical and Financial bids.

Required specifications for dual channel Function Generator

1. Dual channel function generator with capacity to output sine, square, arbitrary user-defined (at least 64K points at 200 M Samples/s) , ramp, noise, sinc, DC and exponential rise/fall waveforms, and provide a burst mode.
2. Capacity to output at least 100 MHz sine and square wave outputs. Should be able to generate up to at least 50 MHz pulse waveforms with variable rise/fall times.
3. Repetition rate: 1 micro Hz to 25 MHz. Memory – at least 4 stored waveforms (at least 64K points).
4. Sine and Square (at least): 1 micro Hz to 80 MHz. Pulse (at least): 1 mHz to 50 MHz. User-defined arbitrary: repetition rate above. Ramp: 1 micro Hz to 1 MHz
5. Noise bandwidth: 50 MHz. Frequency resolution: 1 micro Hz. Frequency accuracy 3 ppm or better.
6. Sine wave THD: DC to 20 kHz < 0.2% + 0.2 mVrms or better. Phase noise 10 MHz: < -70 dBc
7. Square wave: Rise/fall time < 8 ns. Jitter (rms) > 2 MHz 0.1% + 100 ps or better.
8. Pulse: period : 20 ns to 2000 s. Width: 8 ns to ~ 2000s.
9. Arbitrary: min edge time < 10 ns. Linearity < 0.1% of peak.
10. Burst mode: waveforms: all of the above. Count: 1 to at least 500,000 cycle or infinity. Gate: external trigger. Trigger sources: single manual, internal, external. Trigger delay (at least): 0 ns to 50 seconds.
11. Triggers: TTL (input / output).
12. Must provide a sync output for other instruments (TTL). 50 Ohm.
13. Must provide a front panel control for asserting power on for output waveform.

14. Amplitude (into 50 Ohm): at least 20 mV peak to peak to 10 V peak to peak. Accuracy (at 1 kHz): 1% of setting +/- 1m Vpp. Units (at least): Vpp, Vrms, Vhi and Vlo.
15. Offset (into 50 Ohm): +/- 5 Vpp ac + dc.
16. Waveform o/p: 50 Ohm, > 10 M Ohm. Short-circuit protection.
17. Modulation (source: internal/external): AM (carrier: sine, square, and arbitrary, mod: sine, square, noise, and arbitrary, frequency: 2 mHz to 20 kHz), FM (carrier: sine, square and arbitrary, mod: sine, square, noise and arbitrary, frequency: 2 mHz to 20 kHz) and FSK capability (carrier: sine, square and arbitrary, frequency: 1 micro Hz to 80 MHz).
18. Ability to do linear and logarithmic sweeps. Programmable burst mode and gating.
19. Sync with an external clock (at least 10 MHz). Clock reference: phase offset -2 pi to 2 pi. Resolution: 0.005 degrees or better.
20. IEEE Bus implementation. Talk only and Addressible. SCPI (IEEE-488.2) compliant. RS-232. Front panel operations should be programmable (including power on).
21. EMC: IEC-61326-1.
22. Safety standards compliance: EN61010-1.
23. Net weight < 5 kg.
24. Quote must include all necessary cables for triggered operation.
25. Warranty: 5 year comprehensive on-site warranty is required
26. Delivery and installation: Within 1 month of placed order

Dr. Madhusudan Singh
(Chairman, purchase committee)

Terms and Conditions

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as "Technical Bid" and "Financial Bid" respectively. Both the sealed envelopes should be sent in a single sealed envelope, clearly marked as "Quotation for Dual Channel Function Generator". The quote should reach the following address on or before **Feb 17, 2014, 12 PM**.
Dr. Madhusudan Singh
Department of Electrical Engineering
Block II, Room 236, IIT Delhi, Hauz Khas, New Delhi 110016, India
2. Please quote prices in INR inclusive of all taxes, freight, delivery, installation and onsite training charges. The quotation should provide the total price of the system including all taxes and transportation charges.
3. Quote should be valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India. The vendor must have a website with a credible domain name that has existed prior to the floating of this tender and the specifications, manuals and any other relevant documentation for this equipment must be free to download from that website, independent of the supplied literature.
5. If the quote is being submitted by a representative of the manufacturer, a valid agency-ship or dealership certificate authorizing the agent to quote to IIT Delhi, specific to this tender, on behalf of the manufacturers should be enclosed.
6. Either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
7. Complete set of manuals for the operation of the equipment should be provided.
8. Clearly specify the installation requirements - such as space, power, frequency, environment etc.
9. If the item quoted is proprietary in nature, please enclose proprietary certificate from the principals stating: "Certified that is a proprietary item of M/s and no other manufacturer makes this item."
10. You must include a statement of compliance (expressed as a table) with all the specifications listed in the technical bid, and include a copy of that statement with the technical bid.
11. Please specify all of your terms and conditions clearly, including delivery period.
12. For all purchases, payment is after installation, as per IIT Delhi norms.
13. IIT Delhi is exempted from paying Excise Duty and necessary Excise Duty Exemption Certificate will be provided for which following information are required.
 - a. Quotation with details of Basic Price, Rate & Amount on which ED is applicable.
14. The Institute reserves the right to accept or reject any or all quotations without assigning any reasons thereof.

Dr. Madhusudan Singh (Chairman, purchase committee)
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