INDIAN INSTITUTE OF TECHNOLOGY KANPUR
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Enquiry no.: CELP/PSE/2017-18/AP/NC/20

Opening date: Feb. 07, 2018
Closing Date: Feb. 27, 2017

Subject: Quotation for Digital lock-In Amplifier

Sir/Madam,

Sealed quotes are invited for the supply of **Digital Lock-in Amplifier**, as per the specifications given below.

Signal Channel

Voltage inputs	Single-ended or differential
Sensitivity	2 nV to 1 V
Current input	10^6 or 10^8 V/A
Input impedance Voltage input Current input	 10 MΩ + 25 pF, AC or DC coupled 1 kΩ to virtual ground
Gain accuracy	±1 % (±0.2 % typ.)
Noise	6 nV/√Hz at 1 kHz 0.13 pA/√Hz at 1 kHz (10^6 V/A) 0.013 pA/√Hz at 100 Hz (10^8 V/A)
Line filters	50/60 Hz and 100/120 Hz (Q=4)
CMRR Dynamic reserve	100 dB at 10 kHz, decreasing by 6 dB/oct above 10 kHz >100 dB (without pre-filters)
Stability	<5 ppm/°C

Reference Channel

Frequency range	0.001 Hz to 102.4 kHz
Reference input	TTL or sine (400 mVpp min.)

Input impedance	1 MΩ, 25 pF
Phase resolution	0.01° front panel, 0.008° through computer interfaces
Absolute phase error	<1°
Relative phase error	<0.001°
Orthogonality	90° ± 0.001°
Phase noise Int. reference Ext. reference	 Synthesized, <0.0001° rms at 1 kHz 0.005° rms at 1 kHz, 100 ms, 12 dB/oct
Phase drift	<0.01°/°C below 10 kHz, <0.1°/°C, 10 kHz to 100 kH
Harmonic detection	2F, 3F, ... nF to 102 kHz (n < 19,999)
Acquisition time	(2 cycles + 5 ms) or 40 ms, whichever is greater

Displays

Channel	4½-digit LED display with 40-segment LED bar graph. X, R, X-noise, Aux 1 or Aux 2
Channel 2	4½-digit LED display with 40-segment LED bar graph. Y, Θ, Y-noise, Aux 3 or Aux 4
Offset	X, Y, R can be offset up to ±105 % of full scale.
Expand	X, Y, R can be expanded by 10× or 100×
Reference	4½-digit LED display

General

Interfaces	IEEE-488.2 and RS-232 interfaces standard.
Warranty	One year

Sealed quotation needs to be sent to Prof. Asima Pradhan, Centre for Laser and Photonics (CELP), I.I.T Kanpur, Kanpur -208016, India by 27th Feb 2018.

Your quote should mention/include the following:

- Validity at least for 90 days. Delivery time 6-8 weeks from the date of receipt of P.O.
- Minimum Warranty of 1 year at least. Longer warranty period preferred.
- Vendors who offer their prices in INR should mention F. O. R. (IIT Kanpur) separately.
- Vendors who offer their prices in foreign currency should mention FOB and CIF/CIP (New Delhi) separately.
- The quote should cover insurance and transport up to Kanpur (F.O.R. IIT Kanpur).

- Quotation should carry proper certifications like agency certificate, proprietary certificate, etc.
- Terms and conditions for the payment:
    - 1) For Indian suppliers, 90% against delivery and 10% against installation
    - 2) For foreign suppliers, 100% against L.O.C.

• Technical literature to support your product.
• Users' list with contact address.
• Concessional rate of GST (@5%) will be applicable with reference to Notification No. 45/2017-Central Tax (Rate) dated 14/11/2017. We will provide relevant certificate for this purpose.