### बीएचईएल B

RD:DP:MPX:F-04

### BHARAT HEAVY ELECTRICALS LIMITED PHONES: 23774494 (EXCHANGE)

CORPORATE RESEARCH & DEVELOPMENT DIVISION VIKASNAGAR, HYDERABAD - 500 093, INDIA

ENQUIRY

DIRECT: 23882104/23882204/

23778474/23776772

28-JUN-11

91 40 23770698

25-AUG-11

- Enquiry No: Enq Date: Due Date: Delivery By:

27-MAY-11

FAX:

PLEASE SUBMIT YOUR QUOTATION IN SEALED COVER SUPERSCRIBED WITH ENQUIRY NO, ENQUIRY DATE AND DUE DATE SUBJECT TO OUR TERMS AND CONDITIONS ENCLOSED, FOR THE FOLLOWING MATERIALS SO AS TO REACH US ON OR BEFORE THE DUE DATE BY 12 NOON. THE TENDERS WILL BE OPENED AT 2 PM ON THE SAME DAY

Pin

To

Email:

Attn. .

PLEASE GIVE REFERENCE OF ENQ NUMBER, ENQ. DATE AND DUE DATE IN ALL YOUR CORRESPONDENCE FOR PROMPT ACTION. IN CASE IF YOU ARE NOT MAKING THE OFFER PLEASE POST A REGRET LETTER AND RETURN THE DOCUMENTS.

331190101

SL NO DESCRIPTION / SPECIFICATION UNIT QTY

1 MULTI-CHANNEL TRANSIENT SCOPE RECORDER WITH ACCESSORIES.
AS PER SPECIFICATION SHEET ENCLOSED.

NOTE:
REVERSE AUCTION:BHEL RESERVES THE RIGHT TO PROCURE ABOVE ITEMS
THROUGH REVERSE AUCTION AMONG QUALIFIED BIDDERS.

Please submit your offer in Two parts as per enclosed "General Terms and Conditions of enquiry, Loading Factors & Contract for the purchase of Goods/ Services" in separate sealed covers as detailed below:

- 1) First cover shall contain a) Technical & Commercial bid, b) Compliance Statement, duly filled-in, c) Un-Priced Price-bid, i.e. a copy of price-bid, with price(s) cells Left blank;
- 2) Second Cover containing Price bid. If the Price bid is found to be different from the un-Priced Price bid in any way, the offer will be rejected.
- 3) BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if any foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines-which require mandatory submission of and Agency Agreement. The Agency agreement should specify the precise relationship between the foreign OEM/ foreign principal and their Indian agent and their mutual Interest in the business. All services to be rendered by the agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the agreement and be made explicit in order to ensure compliance to laws of the country. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only. Wherever Indian agents are representing on behalf of their principals, the relevant authorization letter and agency agreement copy to be enclosed along with technical bid to consider the offer failing which BHEL shall deal with the principal for all correspondence and business purposes.
- 4) All offers must include name of Contact person, Ph/mobile. no., Fax no.; email no.
- 5) Taxes & Duties: "Being a research institution, BHEL R&D is exempt from Customs duty against direct imports from foreign suppliers and exempt from Central excise duty for procuring from indigenous manufacturers in terms of Govt notification no.24/2007-Customs dt. 01-Mar-2007 & Central excise notification 16/2007 dt 01-Mar-2007. Hence, suppliers are requested to submit their bids clearly stating applicable taxes/ duties. The quoted taxes/ duties will be taken for cost evaluation & order placement and no change will be entertained later except in the case of changes made by the Government.
- 6) Changes in Taxes and Duties because of the changes in Turnover etc. will be to the supplier's account.

# RD:DP:MPX:F-04

### BHARAT HEAVY ELECTRICALS LIMITED PHONES: 23774494 (EXCHANGE)

### CORPORATE RESEARCH & DEVELOPMENT DIVISION VIKASNAGAR, HYDERABAD - 500 093, INDIA **ENQUIRY**

DIRECT: 23882104/23882204/ 23778474/23776772

91 40 23770698 FAX:

7) In case any Taxes/duties exempted, a self declaration for the same may be attached to the offer.

8) Offers of techno-commercially qualified vendors shall be evaluated on over-all lowest cost to BHEL.

9) Warranty: 2 year from receipt and acceptance.

10) Calibration certificate: required

AS WE ARE ENGAGED IN R&D ACTIVITY "C" FORM WILL NOT BE ISSUED

Yours faithfully

for

PLEASE FILL UP THE ENCLOSED VENDOR REGISTRATION FORM BHARAT HEAVY ELECTRICALS LTD AND SEND IT ALONG WITH YOUR QUOTATION. OTHERWISE YOUR QUOTATION WILL NOT BE CONSIDERED.

SARMA MKVH Sr Dy Gen Manager

Email: sarma mkvh@bhelrnd.co.in

### **Specification of Transient Scope Recorder**

The specification of multi channel Transient Scope Recorder with TFT colour LCD monitor.		The transient scope recorder should be capable of displaying the waveforms in LCD monitor and recording the waveform in internal hard disk. The main unit should have povision for minimum of sixteen number of isolated channels with isolation level of 1000 or more. The transient recorder should have features like display and recording voltage and current waveforms in real time. The detailed specification of the transient scope recorder is given below.		
S.No	Specification of Transient Scope Recorder			
1	Specifications of the mainframe capability			
	SAMPLING RATE	10 MSa/sec or more		
	INPUT SECTION			
	No. of Input Channels to support(Angalog/Digital)	2 channel to 128 channels		
	No of slots for input modules	Minimum 8 slots or more		
	Time axis setting range/sweep time	100 ns/div to 30sec/div1days/div to 3 days/div		
	Time axis accuracy	+/-0.01% or even better		
	Isolation Level	Isolation between the modules (1 kV or more)		
	DISPLAY			
	Display	10.4 inch or more, TFT colour LCD monitor		
	Display resolution of waveform	800x600 or more		
	Display format	TY display for 1, 2, 3, 4, 6, 8, 12, 16 division display, XY & zooming for two locations should be available		
	Expansion/reduction of vertical axis direction	multiplied with 0.1 to 100 Div/span set selectable.		
	Acquisition			
	Dual capture	Data acquisition on the same waveform at 2 different sampling rates: Main waveform(low sampling rate) and capture waveform(high sampling rate)		
	Real time hard disk recording	Data should be stored in the hard disc at the same time of acquisition in accordance with trigger mode.		
	Recorder Length	10 Mword/Channel or more if all the 16 channel are used simultaneously. For maximising the record length, minimum of 250 MWords has to be provided		
	History memory	5000 screens of past waveforms or more		
E	ANALYSIS AND COMPUTATION			
	Zoom	Expand the displayed waveform along time axis (Two locations using separate Zoom rates)		
	History search function	Should search for and display waveforms from the history memory that satisfies specified conditions. Zone search/parameter search		
	Sequential storage	For single shot events continuously for up to 5000 screens		
	Math Functions	MATH operation, Basic operators and user defiend computation should be available like Addition, subtraction, multiplication, FFT, Binary Computation etc.		
	FFT analysis	1). Time window: Rect/Hanning/Hamming/flat top 2). FFT Subject to be computated: CHn MATHn. 3). Computation points: 1k/2k/5k/10k/20k/50k/100k.		
	Automatic parameter measurements	P-P, Amp, Max, Min, High, Low, Avg, Rms, Sdev,+OvrShoot, -OvrShoot, Rise, Fall, Freq, Period, +Width,-Width, Duty, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod,Int1TY, Int2TY, Int1XY, Int2XY etc		
		Vertical & Horizontal axis cursors, Markers, Degree are required		

l	FTRIGGER			
	Trigger modes	Auto, Auto level, Normal, Single, Singl(N), on start		
	Trigger Sources	Any input channel, ext., Time & line inputs are required		
	Trigger Types	Edge, event/patterns, OR, AND, Delay, Wave Window etc		
	External I/O functions	Trigger IN/OUT,		
Trigger level setting range		5 V (+/-) and above		
	Actions-on trigger	Screen image data output, waveform data storage, buzzer notification, and e-mail transmission		
(	GENERAL REQUIREMENTS			
	Screen image data storage	Formats in PNG, JPEG, BMP		
	External Printer to be supported	By using Ethernet port and USB.		
	SD card slot	Memory card confirms to SD, SDHC. Minimum capacity 8 GB.		
	Built in HDD	60 GB or more		
	Direct Access Internal Memory(RAM)	Minimum 250 Megapoints or megawords expandable upto 2 Gpts or 2 Gigaword		
	Interfaces	interfaces to GP- IB, USB, Ethernet are to be provided.		
	VGA output	should be available		
	Power Supply	180-240V AC, 50/60Hz		
	Auxiliary I/O	EXT CLK IN, EXT TRIG IN, EXT TRIG OUT, EXT I/O, Video Signal Output.		
	Web server function display	Able to start, stop and monitor the scope waveform on PC via Ethernet.		
Software for post analysis		PC Interface sortware should be included in the offer of main unit. The software should support variety of functions for the PC including like zoom display, cursor measurement, parameter computation, data conversion, creation of report.		
	Remote control	Able to control the instrument remotely by using Ethernet/USB/software.		
	Operating Temperature range	5 to 40 Degree C		
2	SIGNAL INPUT MODULE SPECIFICATIONS			
,	A 10 Msa/s Voltage Input Module	Qty: 07		
	Input channels	2		
	Sampling rate required	10MSa/sec or more		
	A/D conversion resolution	12 bits		
	Measurement of wave forms	200V (AC or DC) or more		
	Input range	5mV/div to 20V/div		
	Input type	Isolated unbalanced		
	Frequency bandwidth	DC to 3MHz		
	Input coupling	AC, DC and GND.		
	DC accuracy	±(0.5% of 10 div)		
	Input impedence	1M ohms		
	Input Filters required	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.		
	Input connector	BNC connector (isolated type)		
	Probe attenuation setting	1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V		

Input channels A/D conversion resolution Input coupling DC, GND Sample rate 20 KSa/sec(single CH) or more  Maximum input voltage 40V Vertical (voltage) axis accuracy ±(0.3% of 10div) Input impedance Input connector Spring-type terminal or screw type terminal  PROBES SPECIFICATIONS A High Voltage Differential Probe Qty: 02 Attenuation Input resistance Allowable differential voltage measurable Power requirement Internal battery as well as external power supply. Input resistance DC Current Probe Aximum posik current Prequency range Qty: 03 Maximum peak current Prequency range DC to 2 MHz Output voltage rate Quipt vol	B 16-CH Voltage Input Module	Qty: 01
Input coupling  DC, GND  Sample rate  Maximum input voltage  40V  Vertical (voltage) axis accuracy  Input impediance  Input connector  PROBES SPECIFICATIONS  A High Voltage Differential Probe Attenuation  Frequency range  Allowable differential voltage measurable  DC to 50 MHz  Allowable differential voltage measurable  DC to 50 MHz  Allowable differential voltage measurable  Power requirement  Internal battery as well as external power supply.  B AC - DC Current Probe  Maximum peak current  Frequency range  DC to 2 MHz  Output voltage rate  Output voltage rate  Output voltage rate  Output voltage rate  C 100:1 Isolation Probe  Attenuation ratio  D Isolation logic Probe  Number opf input bits  8  Input Probe) or 02 (4 input Probe)  Number opf input bits  8  Input Type  Isolated	Input channels	16
Sample rate 20 KSa/sec(single CH) or more  Maximum input voltage 40V  Vertical (voltage) axis accuracy 4(0.3% of 10div)  Input impedance 1M ohms Input connector Spring-type terminal or screw type terminal  PROBES SPECIFICATIONS  A High Voltage Differential Probe Qty: 02  Attenuation 1000:1 and 100:1; Selectable  Frequency range DC to 50 MHz  Allowable differential voltage measurable 5000 Vrms or 7000 Vpeak  Power requirement Internal battery as well as external power supply.  Input resistance 50 Mohm  B AC - DC Current Probe Qty: 03  Maximum continuous input range 500A  Maximum peak current 700 Apeak  Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy 4(2%)  Power requirement Internal battery or external power supply.  Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable +/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated	A/D conversion resolution	16-bit
Maximum input voltage 40V  Vertical (voltage) axis accuracy ±(0.3% of 10div)  Input impedance 1M ohms  Input connector Spring-type terminal or screw type terminal  3 PROBES SPECIFICATIONS  A High Voltage Differential Probe Qty: 02  Attenuation 1000:1 and 100:1; Selectable  Frequency range DC to 50 MHz  Allowable differential voltage measurable 5000 Vrms or 7000 Vpeak  Power requirement Internal battery as well as external power supply.  Input resistance 50 Mohm  B AC - DC Current Probe Qty: 03  Maximum continuous input range 500A  Maximum peak current 700 Apeak  Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%)  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable +/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated	Input coupling	DC, GND
Vertical (voltage) axis accuracy  Input impedance Input connector  Input connector  Input connector  Spring-type terminal or screw type terminal  PROBES SPECIFICATIONS  A High Voltage Differential Probe Qty: 02  Attenuation  1000:1 and 100:1; Selectable  Prequency range Allowable differential voltage measurable Power requirement Internal battery as well as external power supply.  Input resistance  B AC - DC Current Probe Maximum continuous input range  Maximum peak current  Frequency range DC to 2 MHz Output voltage rate 0.01 V/A Accuracy 4(2%) Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Attenuation ratio Internal battery or external power supply.  C 100:1 Isolation Probe Attenuation ratio Attenuation ratio Internal battery or external power supply.  D Isolation logic Probe Qty: 03 Qty: 03  Attenuation ratio Qty: 03  Attenuation ratio Internal battery or external power supply.  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits 8	Sample rate	20 kSa/sec(single CH) or more
Input impedance Input connector Spring-type terminal or screw type terminal  PROBES SPECIFICATIONS A High Voltage Differential Probe Attenuation Otto 50 MHz Allowable differential voltage measurable Oct to 50 MHz Allowable differential voltage measurable Frequency range DC to 50 MHz Allowable differential voltage measurable Frequency requirement Internal battery as well as external power supply. Input resistance Otty: 03 Maximum continuous input range Maximum peak current Frequency range DC to 2 MHz Output voltage rate Accuracy Accuracy Accuracy Accuracy Attenuation ratio Internal battery or external power supply.  C 100:1 Isolation Probe Attenuation ratio D to 200MHz or more Maximum Voltage Measurable Artenuation ratio Internal battery or octornal power supply.  C 100 Mohms  D isolation logic Probe Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits 8 Input Type Isolated	Maximum input voltage	40V
Input connector  Spring-type terminal or screw type terminal  A High Voltage Differential Probe Attenuation  Attenuation  Ot to 50 MHz Allowable differential voltage measurable  Power requirement Internal battery as well as external power supply.  Input resistance  B AC - DC Current Probe Awaimum continuous input range  Out to 2 MHz  Output voltage rate  Output voltage rate  Output voltage rate  Accuracy  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Attenuation ratio  Attenuation ratio  Output voltage Measurable  Attenuation ratio  Output Probe  Output Probe)  Number opf input bits  8  Input Type  Input Type  Isolated	Vertical (voltage) axis accuracy	±(0.3% of 10div)
Input connector  Spring-type terminal or screw type terminal  PROBES SPECIFICATIONS  A High Voltage Differential Probe Attenuation  Frequency range DC to 50 MHz Allowable differential voltage measurable Food Vrms or 7000 Vpeak  Input resistance S0 Mohm  B AC - DC Current Probe Maximum continuous input range DC to 2 MHz Output voltage rate Output voltage rate Accuracy Accuracy Accuracy Accuracy Attenuation Probe Attenuation ratio Attenuation ratio Disolation logic Probe Number opf input bits  Requency fingut Probe) Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repequency fingut Probe) Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits  Repaired Oty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits	Input impedance	1M ohms
A High Voltage Differential Probe Attenuation  Attenuation  Attenuation  DC to 50 MHz  Allowable differential voltage measurable  Power requirement  Internal battery as well as external power supply.  Input resistance  B AC - DC Current Probe Aximum continuous input range  Maximum peak current  Frequency range  Output voltage rate  Output voltage rate  Output voltage rate  Output voltage rate  Accuracy  Power requirement  Internal battery or external power supply.  C 100:1 Isolation Probe  Attenuation ratio  Axtenuation ratio  Maximum Voltage Measurable  Input Impedance  D to 200MHz or more  Maximum Voltage Measurable  -t/-1000V (DC+ACPeak)  Input Type  Input Type  Isolated	Input connector	
A High Voltage Differential Probe Attenuation  Attenuation  Attenuation  DC to 50 MHz  Allowable differential voltage measurable  Power requirement  Internal battery as well as external power supply.  Input resistance  B AC - DC Current Probe Aty: 03  Maximum continuous input range  Maximum peak current  Frequency range  DC to 2 MHz  Output voltage rate  Output voltage rate  0.01 V/A  Accuracy  Power requirement  Internal battery or external power supply.  C 100:1 Isolation Probe  Attenuation ratio  Attenuation ratio  Maximum Voltage Measurable  Aty: 03  Attenuation logic Probe  Number opf input bits  Input Type  Isolated	3 PROBES SPECIFICATIONS	
Attenuation 1000:1 and 100:1; Selectable  Frequency range DC to 50 MHz  Allowable differential voltage measurable 5000 Vrms or 7000 Vpeak  Power requirement Internal battery as well as external power supply.  Input resistance 50 Mohm  B AC - DC Current Probe 2ty: 03  Maximum continuous input range 500A  Maximum peak current 700 Apeak  Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%)  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe 2ty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable +/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe 2ty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated		
Frequency range Allowable differential voltage measurable Fower requirement Internal battery as well as external power supply.  Input resistance  50 Mohm   B AC - DC Current Probe Qty: 03 Maximum continuous input range Maximum peak current Frequency range Output voltage rate Output voltage rate Accuracy Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03 Attenuation ratio Reequency range Dc to 2 MHz Output voltage Measurable Input Impedance  Dc to 200MHz or more  Maximum Voltage Measurable Input Impedance  Output Probe) or 02 (4 input Probe) Number opf input bits  8 Input Type Isolated		
Allowable differential voltage measurable  Power requirement  Input resistance  50 Mohm  B AC - DC Current Probe  Maximum continuous input range  Maximum peak current  Frequency range  Output voltage rate  Accuracy  Power requirement  Internal battery as well as external power supply.  C 100:1 Isolation Probe  Qty: 03  Attenuation ratio  Maximum Voltage Measurable  D to 200MHz or more  Maximum Voltage Measurable  D Isolation logic Probe  Number opf input bits  Requency Input Type  Internal battery or 02 (4 input Probe)  Oty: 01 (8 input Probe) or 02 (4 input Probe)  Input Type  Isolated		
Power requirement Internal battery as well as external power supply.  Input resistance 50 Mohm  B AC - DC Current Probe Qty: 03  Maximum continuous input range 500A  Maximum peak current 700 Apeak  Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%)  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable +/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated		
Input resistance  B AC - DC Current Probe Qty: 03  Maximum continuous input range 500A  Maximum peak current Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%) Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio Attenuation ratio Reequency range Dc to 200MHz or more Maximum Voltage Measurable input Impedance  D Isolation logic Probe Number opf input bits 8  Input Type Isolated		·
B AC - DC Current Probe Qty: 03  Maximum continuous input range 500A  Maximum peak current 700 Apeak Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%) Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio Attenuation ratio Dc to 200MHz or more Maximum Voltage Measurable 1-/-1000V (DC+ACPeak) Input Impedance  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits 8 Input Type Isolated	·	
Maximum continuous input range 500A  Maximum peak current 700 Apeak  Frequency range DC to 2 MHz  Output voltage rate 0.01 V/A  Accuracy ±(2%)  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable +/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated	input resistance	30 MOTHT
Maximum continuous input range  500A  Maximum peak current  700 Apeak  Frequency range  DC to 2 MHz  Output voltage rate  0.01 V/A  Accuracy  £(2%)  Power requirement  Internal battery or external power supply.  C 100:1 Isolation Probe  Qty: 03  Attenuation ratio  100:1;  Reequency range  Dc to 200MHz or more  Maximum Voltage Measurable  -t/-1000V (DC+ACPeak)  Input Impedance  D Isolation logic Probe  Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  8  Input Type  Isolated	B AC - DC Current Probe	Qty: 03
Frequency range  Output voltage rate  0.01 V/A  Accuracy  ±(2%)  Power requirement  Internal battery or external power supply.  C 100:1 Isolation Probe  Qty: 03  Attenuation ratio  100:1;  Reequency range  Dc to 200MHz or more  Maximum Voltage Measurable  -+/-1000V (DC+ACPeak)  Input Impedance  D Isolation logic Probe  Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  8  Input Type  Isolated	Maximum continuous input range	
Output voltage rate  Output voltage rate  Accuracy  ±(2%)  Power requirement  Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio  Attenuation ratio  Dc to 200MHz or more  Maximum Voltage Measurable  Input Impedance  D to Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  Input Type  Isolated	Maximum peak current	700 Apeak
Accuracy ±(2%)  Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03  Attenuation ratio 100:1;  Reequency range Dc to 200MHz or more  Maximum Voltage Measurable .+/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated	Frequency range	DC to 2 MHz
Power requirement Internal battery or external power supply.  C 100:1 Isolation Probe Qty: 03 Attenuation ratio 100:1; Reequency range Dc to 200MHz or more Maximum Voltage Measurable .+/-1000V (DC+ACPeak) Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe) Number opf input bits 8 Input Type Isolated	Output voltage rate	0.01 V/A
C 100:1 Isolation Probe Attenuation ratio 100:1; Reequency range Dc to 200MHz or more Maximum Voltage Measurable Input Impedance 10 Mohms  D Isolation logic Probe Number opf input bits 8 Input Type Isolated	Accuracy	±(2%)
Attenuation ratio  Attenuation ratio  Dc to 200MHz or more  Maximum Voltage Measurable  -+/-1000V (DC+ACPeak)  Input Impedance  10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  Input Type Isolated	Power requirement	Internal battery or external power supply.
Attenuation ratio  Reequency range  Dc to 200MHz or more  Maximum Voltage Measurable  -+/-1000V (DC+ACPeak)  Input Impedance  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  Input Type  Isolated	C 100:1 Isolation Probe	Onv. 03
Reequency range  Maximum Voltage Measurable  -+/-1000V (DC+ACPeak)  Input Impedance  10 Mohms  DIsolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits  Input Type  Isolated	Attenuation ratio	-
Maximum Voltage Measurable .+/-1000V (DC+ACPeak)  Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated	Reequency range	
Input Impedance 10 Mohms  D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8  Input Type Isolated		
D Isolation logic Probe Qty: 01 (8 input Probe) or 02 (4 input Probe)  Number opf input bits 8 Input Type Isolated		
Number opf input bits  Input Type  Isolated		
Number opf input bits  Input Type  Isolated	DIsolation logic Probe	Otay Od (O input Broke) on OO (d input Broke)
Input Type Isolated		
		Isolated
IMinimum input voltage I170 V (DC+Acpeak) or more	Minimum input voltage	170 V (DC+Acpeak) or more
Response time 1 milli sec or less		
E High Speed Logic Probe  Qty: 01 (8 input Probe) or 02 (4 input Probe)	E High Speed Logic Probe	Qty: 01 (8 input Probe) or 02 (4 input Probe)
Number of input bits 8	Number of input bits	
Minimum input voltage 30V (DC+Acpeak) or more	Minimum input voltage	30V (DC+Acpeak) or more
Response time 1 micro sec or less	Response time	1 micro sec or less

F	1:1 BNC Adapter Lead	Qty: 04
	Attenuation	1:01
	Maximum voltage measurable	1000 Vrms
	Supplied with	Alligaator clip adaptor set.
G	Measurement Lead set with Alligator clip adaptor set	Qty: 04
4	List of Deliverables	
	Main Unit	One set
	Voltage Input modules (10MSa/s or more)	7 Nos
	Voltage input module (16 Ch)	1 Nos
	High voltage differential probe (7 kVpeak)	2 Nos
	AC-DC Current probe (500 Arms)	3 Nos
	100:1 Isolated Probe	3 Nos
	Isolated Logic Probe	1 Nos
	High Speed Logic Probe	1 Nos
	1:1 BNC Adapter Lead with Alligator Clip set	4 Nos
	Measurement Lead Set with Alligator Clip set	4 Nos
	User manuals	1 set
	Test reports and calibration certificate of all the items	1 set
	Power Chords	Has to be part of the main unit, minimum requirements has to supplied with main unit.
	Carrying case	1 Nos (The cost of the carrying case has to be included in the main unit)

### Note:

- 1) Probes covered in the specification shall be compatible with the proposed Transient scope recorder
- 2) Supplier shall submit data sheet and relevant application note of the proposed Transient scope recorder, Voltage modules and probes along with the quotation.
- 3) Supplier should enclose filled & attested compliance statement (as per BHEL specification) along with the offer for technical evaluation.
- 4) Warranty: Minimum of Two years of Warrenty is required.
- 5) The supplier shall be in a position to undertake AMC or provide service support for the equipment supplied, after the expiry of the warranty / guarantee period either directly or through a service representative.
- 6) Calibration: Calibration Certification valid for minimum One year atleast is required
- 7) Accessories: If any accessories is required for the basic operation, supplier should mention in his offer.
- 8) List of deliverable along with each item should be specified in the offer

		Enq 331190101 - Compliance \$	Statement	
S.No	Specification of Transient Scope Recorder	As per BHEL Specification	To be filled by the Supplier for the Tranisent Recorder what they offered	Remarks
1	Specifications of the mainframe capability			
A	SAMPLING RATE	10 MSa/sec or more		
В	INPUT SECTION			
	No. of Input Channels to support(Angalog/Digital)	2 channel to 128 channels		
	No of slots for input modules	Minimum 8 slots or more		
	Time axis setting range/sweep time	100 ns/div to 30sec/div1days/div to 3 days/div		
	Time axis accuracy	+/-0.01% or even better		
	Isolation Level	Isolation between the modules (1 kV or more)		
C	DISPLAY			
	Display	10.4 inch or more, TFT colour LCD monitor		
	Display resolution of waveform	800x600 or more		
	Display format	TY display for 1, 2, 3, 4, 6, 8, 12, 16 division display, XY & zooming for two locations should be available		
	Expansion/reduction of vertical axis direction	multiplied with 0.1 to 100 Div/span set selectable.		
D	Acquisition			
	Dual capture	Data acquisition on the same waveform at 2 different sampling rates: Main waveform(low sampling rate) and capture waveform(high sampling rate)		
	Real time hard disk recording	Data should be stored in the hard disc at the same time of acquisition in accordance with trigger mode.		
	Recorder Length	10 Mword/Channel or more if all the 16 channel are used simultaneously. For maximising the record length, minimum of 250 MWords has to be provided		
	History memory	5000 screens of past waveforms or more		
E	ANALYSIS AND COMPUTATION			
	Zoom	Expand the displayed waveform along time axis (Two locations using separate Zoom rates)		
	History search function	Should search for and display waveforms from the history memory that satisfies specified conditions. Zone search/parameter search		
	Sequential storage	For single shot events continuously for up to 5000 screens		

MATH operation, Basic operators and user defiend computation should be available like Addition, subtraction, multiplication, FFT, Binary Computation etc.		
1). Time window: Rect/Hanning/Hamming/flat top 2). FFT Subject to be computated: CHn, MATHn. 3). Computation points: 1k/2k/5k/10k/20k/50k/100k.		
P-P, Amp, Max, Min, High, Low, Avg, Rms, Sdev,+OvrShoot, -OvrShoot, Rise, Fall, Freq, Period, +Width,-Width, Duty, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod,Int1TY, Int2TY, Int1XY, Int2XY etc		
Vertical & Horizontal axis cursors, Markers, Degree are required		
Auto, Auto level, Normal, Single, Singl(N), on start		
Any input channel, ext., Time & line inputs are required		
Edge, event/patterns, OR, AND, Delay, Wave Window etc		
Trigger IN/OUT,		
5 V (+/-) and above		
Screen image data output, waveform data storage, buzzer notification, and e-mail transmission		
	defiend computation should be available like Addition, subtraction, multiplication, FFT, Binary Computation etc.  1). Time window: Rect/Hanning/Hamming/flat top 2). FFT Subject to be computated: CHn, MATHn. 3). Computation points: 1k/2k/5k/10k/20k/50k/100k.  P-P, Amp, Max, Min, High, Low, Avg, Rms, Sdev,+OvrShoot, -OvrShoot, Rise, Fall, Freq, Period, +Width,-Width, Duty, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod,Int1TY, Int2TY, Int1XY, Int2XY etc  Vertical & Horizontal axis cursors, Markers, Degree are required  Auto, Auto level, Normal, Single, Singl(N), on start  Any input channel, ext., Time & line inputs are required  Edge, event/patterns, OR, AND, Delay, Wave Window etc  Trigger IN/OUT, 5 V (+/-) and above Screen image data output, waveform data	defiend computation should be available like Addition, subtraction, multiplication, FFT, Binary Computation etc.  1). Time window: Rect/Hanning/Hamming/flat top 2). FFT Subject to be computated: CHn, MATHn. 3). Computation points: 1k/2k/5k/10k/20k/50k/100k.  P-P, Amp, Max, Min, High, Low, Avg, Rms, Sdev,+OvrShoot, -OvrShoot, Rise, Fall, Freq, Period, +Width,-Width, Duty, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod,Int1TY, Int2TY, Int1XY, Int2XY etc  Vertical & Horizontal axis cursors, Markers, Degree are required  Auto, Auto level, Normal, Single, Singl(N), on start  Any input channel, ext., Time & line inputs are required  Edge, event/patterns, OR, AND, Delay, Wave Window etc  Trigger IN/OUT, 5 V (+/-) and above Screen image data output, waveform data

	GENERAL		Ī
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REQUIREMENTS		
	Screen image data storage	Formats in PNG, JPEG, BMP	
	External Printer to be	By using Ethernet port and USB.	
	supported		
		Memory card confirms to SD, SDHC.	
	SD card slot	Minimum capacity 8 GB.	
	Built in HDD	60 GB or more	
	Direct Access Internal	Minimum 250 Megapoints or megawords	
	Memory(RAM)	expandable upto 2 Gpts or 2 Gigaword	
	Interfaces	interfaces to GP- IB, USB, Ethernet are to be provided.	
	VGA output	should be available	
	Power Supply	180-240V AC, 50/60Hz	
	Auxiliary I/O	EXT CLK IN, EXT TRIG IN, EXT TRIG OUT, EXT I/O, Video Signal Output.	
	Web server function display	Able to start, stop and monitor the scope	
		waveform on PC via Ethernet.	
	Software for post analysis	PC Interface sortware should be included in	
		the offer of main unit. The software should	
		support variety of functions for the PC	
		including like zoom display, cursor	
		measurement, parameter computation, data	
		conversion, creation of report.	
	Remote control	Able to control the instrument remotely by using Ethernet/USB/software.	
	Operating Temperature range	5 to 40 Degree C	
	operating reinperature range	o to To Degree C	
	SIGNAL INPUT MODULE		
2	SPECIFICATIONS		
A	10 Msa/s Voltage Input Module	Qty: 07	
	Input channels	2	
	Sampling rate required	10MSa/sec or more	
	A/D conversion resolution	12 bits	
	Measurement of wave forms	200V (AC or DC) or more	
	Input range	5mV/div to 20V/div	
	Input type	Isolated unbalanced	
	Frequency bandwidth	DC to 3MHz	
	Input coupling	AC, DC and GND.	
	DC accuracy	±(0.5% of 10 div)	
	I		
L I	Input impedence	1M ohms	 
	Input Filters required	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.	
	Input Filters required Input connector	Off, 500Hz, 5kHz, 50kHz, 500kHz etc. BNC connector (isolated type)	
	Input Filters required	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.	
	Input Filters required Input connector	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V	
	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V	
В	Input Filters required Input connector Probe attenuation setting	Off, 500Hz, 5kHz, 50kHz, 500kHz etc. BNC connector (isolated type) 1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module Input channels A/D conversion resolution	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module Input channels	Off, 500Hz, 5kHz, 50kHz, 500kHz etc. BNC connector (isolated type) 1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01  16 16-bit	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module Input channels A/D conversion resolution Input coupling	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01  16  16-bit DC, GND	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module Input channels A/D conversion resolution Input coupling Sample rate	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01  16  16-bit  DC, GND  20 kSa/sec(single CH) or more	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module  Input channels A/D conversion resolution Input coupling Sample rate Maximum input voltage	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01  16  16-bit  DC, GND  20 kSa/sec(single CH) or more  40V	
В	Input Filters required Input connector Probe attenuation setting  16-CH Voltage Input Module  Input channels A/D conversion resolution Input coupling Sample rate Maximum input voltage Vertical (voltage) axis	Off, 500Hz, 5kHz, 50kHz, 500kHz etc.  BNC connector (isolated type)  1:1, 10:1, 100:1, 1000:1, 10A:1V, 100A:1V  Qty: 01  16  16-bit  DC, GND  20 kSa/sec(single CH) or more  40V	

3 PROBES SPECIFICATIONS		
High Voltage Differential		
A Probe	Qty: 02	
Attenuation	1000:1 and 100:1; Selectable	
Frequency range	DC to 50 MHz	
Allowable differential voltage measurable	5000 Vrms or 7000 Vpeak	
Power requirement	Internal battery as well as external power supply.	
Input resistance	50 Mohm	
B AC - DC Current Probe	  Qty: 03	
Maximum continuous input	500A	
range		
Maximum peak current	700 Apeak	
Frequency range	DC to 2 MHz	
Output voltage rate	0.01 V/A	
Accuracy	±(2%)	
Power requirement	Internal battery or external power supply.	
C 100:1 Isolation Probe	Qty: 03	
Attenuation ratio	100:1;	
Reequency range	Dc to 200MHz or more	
Maximum Voltage Measurable	.+/-1000V (DC+ACPeak)	
Input Impedance	10 Mohms	
D Isolation logic Probe	Qty: 01 (8 input Probe) or 02 (4 input Probe)	
Number opf input bits	8	
Input Type	Isolated	
Minimum input voltage	170 V (DC+Acpeak) or more	
Response time	1 milli sec or less	
High Speed Logic Probe	Qty: 01 (8 input Probe) or 02 (4 input Probe)	
Number of input bits	8	
Minimum input voltage	30V (DC+Acpeak) or more	
Response time	1 micro sec or less	
F 1:1 BNC Adapter Lead		
Attenuation	1:01	
Maximum voltage measurable	1000 Vrms	
Supplied with	Alligaator clip adaptor set.	
G Measurement Lead set with Alligator clip set	Qty: 04	

### NOTE

- 1) If any deviation are observed by the supplier, clearly they have to mention in the remarks column
- 2) On each page of the compliance statement (after filling the details), the supplier should sign with the Stamp.





CORPORATE R&D DIVISION, VIKAS NAGAR, HYDERABAD - 500 093, AP, India

### General Terms and Conditions of Enquiry & Contract for the Purchase of Goods/ Services

- 1. The quotation and any order resulting from this enquiry shall be governed by these General Terms and Conditions of enquiry and contract for the supply of goods and the supplier quoting against this enquiry shall, unless specifically stipulates any different terms or conditions, be deemed to have read and agreed to the same.
- Sealed quotations in double cover with tenderer's distinctive seal, superscribing enquiry number, date and due date are to be submitted so as to reach on or before
  due date & time, addressed to Additional General Manager(MM), Bharat Heavy Electricals Limited, Corporate Research & Development Division, Vikasnagar,
  Hyderabad, Andhra Pradesh, India PIN–500 093, India to be deposited in Tender Box located at Security gate for hand deliveries.
  - In the case of Two-part bid, each inner cover shall clearly be labeled as a) Technical & Commercial Bid containing technical data/ drawings/ catalogues/ quality plans along with commercial terms and conditions & copy of the price bid with the price columns left blank (unpriced price bid), b) Price bid containing prices quotes. Installation and/or Commissioning charges shall be spelt out in absolutely lucid terms, taking into account total charges, rather than quoting vaguely, such as charges per man-day or charges per engineer per day etc. If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected summarily. The rate shall be quoted in both figures and in words.
- 3. Any Supplier (Agents/distributors/ representatives )desirous of quoting imported goods/ services, they should submit the quote in foreign currency along with agency agreement copy, failing which their offer is liable for rejection. In case of non-submission of agreement copy, the principal should submit quotation to BHEL directly. Foreign suppliers will also indicate in their offer Indian agent's name, if any, and address with percentage of agency commission out of the quoted price, if any. Name and Address of the supplier's Bankers address should also be given
- 4. Tender/ Technical bid Opening: Unless specified otherwise, tenders/ technical bids will be opened on appointed date and time as mentioned in the enquiry or as communicated changed date/time, if any, in the presence of such of those tenderers who may be present.
- 5. Late Tender: Tenders received after tender due date/ time (12:00 hrs) shall be treated as late tenders and will not be considered...
- 6. The Quotation should be free from overwriting and erasures. Corrections and additions, if any, must be attested. Incase of difference in unit price and corresponding total value or figures or words/text, the buyer (BHEL) reserves the right to select the figures or words/text leading to lowest cost to buyer.
- 7. Supplier should indicate in the quotation dimensions (Size), weight, rate etc., in the metric system unless the enquiry calls for different unit.
- 8. Validity of Quotation: All quotations shall be kept open for acceptance for a period of ninety days from the date of opening of Tenders/ Technical bid and this shall be deemed to be an express condition of all quotations.
- 9. In the case of Two-part bid, the vendor should furnish technical clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
- 10. Price Impact: In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise their original bid, they have to submit the Price-Impact only. The Original price bid along with Price-Impact bid shall be opened during pricebid opening. Unsolicited bids will not be considered.
- 11. Pricebid Opening: Unless specified otherwise in the enquiry, the Price bids of technically qualified vendors shall be opened with prior intimation in the presence of such of those tenderers who may be present.
- 12. Conformity to Specifications: The material should be of the best quality and shall be conforming to our specification given in our enquiry. Unless otherwise agreed upon by BHEL, no payment shall be due by BHEL in respect of any sample. Offers without details of specifications/ applicable catalogues will not be considered and are liable to be rejected.
- 13. Terms of Delivery: All Suppliers shall quote the lowest prices on EXW/ FOB/ FCA basis in case of foreign suppliers and on ex-works /Free-on-Rail/Road /F.O.R-destination basis in case of Indian/ indigenous Supplies, indicating packing & forwarding charges if any, separately.
- 14. Taxes and Duties: Unless specified otherwise in the enquiry, BHEL do not provide "C" Form as it is engaged in R&D. All Indian suppliers shall clearly mention current Sales Tax/ VAT, Excise Duty, and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/ percentage, item-wise clearly. The vendors should mention applicable Registration Number(s) specifically in their quotation. Being a research institution, BHEL R&D is exempt from Customs duty against direct imports from foreign suppliers and exempt from Central excise duty against indigenous suppliers as per Govt. of India. Hence, suppliers are requested to submit their bids clearly stating applicable taxes/ duties. The quoted taxes/ duties will be taken for cost evaluation & order placement and no change will be entertained later except in the case of changes made by the Government.
- 15. Insurance: Insurance will be arranged by BHEL in case of Ex-Works as well as FCA / FOB basis supplies.
- 16. Terms of Payment: Full payment will be made within 30 days after receipt, inspection and acceptance of the material (and where involved, Erection and commissioning of the material/ equipment at BHEL/Destination) though Electronic Fund transfer (RTGS/NEFT/SEFT) with bank charges, if any, to the supplier's account. For foreign suppliers, the preferred payment term will be on wire transfer basis and bank charges inside India will be to BHEL account and outside India will be to supplier's account.
- 17. Pricebid evaluation: All offers shall be evaluated based on unit price, P&F, taxes/duties, freight charges if any, loading due to non-acceptance of our standard terms. All foreign offers shall be evaluated based on monthly exchange rates announced by Customs dept., Govt. of India as applicable at technical bid opening date. Suppliers shall quote competitive price and best delivery for all the items mentioned in the enquiry. BHEL reserves the right to reject partial quotations and to place order on overall landed cost basis. Correct date of effecting supplies in the event of an order should be indicated in the offer. If the supplier's quoted terms are different from BHEL standard terms, their offers will be evaluated as per Loading factors form sent along with enquiry.
- 18. Packing: The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit and indicate packing charges, if any, separately.
- 19. Part/ Split Ordering: BHEL reserves right to Order part of the item/ quantity of the enquiry and/or split the order among qualified vendors.
- 20. In case the goods enquired are on Rate Contract basis with any other unit of BHEL, such fact should be clearly indicated in the quotation giving full particulars of Rate Contract number, validity and price and also your willingness to comply with order if placed against such Rate Contract. A true copy of Rate contract signed by the supplier should be sent with the quotation.
- 21. Inspection: On receipt, the goods shall be subjected to inspection and also test, if necessary, and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
- 22. Penalty for late delivery: The time stipulated for delivery of goods shall be deemed to be the essence of the contract and delivery must be completed within the stipulated date/s. In the event of supplier's failure to supply the goods by the stipulated date/s, a penalty of ½% per week for the delayed no of weeks or part thereof for the undelivered portion of PO subject to a maximum of 10% of total order value shall be levied at the discretion of BHEL.
- 23. Withdrawal from the Contract: In case the supplier withdraws their offer before placement of order, BHEL reserves the right not to send next enquiry(ies). In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss, incidentals due to the breach of contract on the part of the supplier through risk purchase.
- 24. Guarantee/ Warranty certificate and Manufacturer's Test report: Invariably in all cases where it is so stipulated, the supplier should furnish Guarantee/ Warranty certificate valid for a period of 18 months from date of supply or 1 year from the date of receipt, acceptance and commissioning (or more, if provide by oem) whichever earlier and manufacturer's Test report along with the goods, failing which, BHEL shall have the right to reject the goods.
- 25. Recovery of Dues: BHEL shall recover any amount due from the supplier or any amount outstanding to the credit of the supplier with BHEL R&D unit or any other BHEL unit(s) and/or by legal action.
- 26. Arbitration & Forum for Legal Proceedings: All disputes arising in connection with indigenous/ foreign supplies shall be settled through arbitration held at Hyderabad, AP, India and arbitrator shall be appointed by BHEL from the enlisted panel. The Courts at Secunderabad/ Hyderabad, AP, India shall have jurisdiction in respect of any suit or other legal proceeding arising from or relating to this contract

The rights and remedies of BHEL stated in these General terms and conditions shall be in addition and supplemental to its rights and remedies under law and custom or usage of trade or business and shall in no way be deemed to limit, curtail, supercede or derogate from its said rights and remedies.

### BHEL R&D RD:DP:MPX:F-22

### **LOADING FACTORS**



NOTE: IN CASE OF DEVIATION TO BHEL TENDER SPECIFIED TERMS, LOADING FACTOR INDICATED IN FOLLOWING TABLE WILL BE APPLIED TO QUOTED PRICE WHILE EVALUATING THE LOWEST QUOTE ()

### A. FOR INDIGENOUS PURCHASES

	A. FOR INDIGENOUS PURCHASES					
SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS	
A.1				SAME	NIL	
	MENT	S		PAYMENT AGAINT PROFORMA INVOIVE / DESPATCH DOCUMENT OR CASH ON DELIVERY (COD) / CASH AGAINST PROOF OF DESPATCH	11% PER ANNUM INTEREST ON THE TOTAL PO VALUE FOR ONE MONTH	
	F EQUIPMENT	PAYMENT TERMS	100% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF	ADVANCE PAYMENT WITH BANK GUARANTEE	11% PER ANNUM INTEREST ON THE TOTAL VALUE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH	
	SUPPLY OF	PAYME	MATERIAL	PART ADVANCE PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE WITH IN 30 DAYS	11% PER ANNUM INTEREST ON ADVANCE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH	
	SUE	<u>.</u>		PART ADVANCE PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE ON RECEIPT OF MATERIAL	11% PER ANNUM INTEREST ON ADVANCE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH AND 11% PER ANNUM INTEREST ON BALANCE AMOUNT FOR ONE MONTH	
A.2	NCLUDING E&C SUBMITT A PERFORMANC HE BASIC VALUE OF THE	NCE		SAME	NIL	
		HE SUPPLIER MUST SUBMITT A PBG) FOR 10% OF THE BASIC VA VARRANTY PERIOD.)		100% PAYMENT WITH IN 30DAYS AFTER COMPLETION OF SUPPLIES AND ERECTION AND COMMISIONING	NIL (PBG WILL NOT BE INSISTED FROM THE SUPPLIER)	
			4 3	90% PAYMENT AGAINT PROFORMA INVOICE/ DESPATCH DOCUMENT <b>OR</b> CASH ON DELIVERY (COD) / CASH AGAINST DESPATCH AND BALANCE 10% WITH IN 30 DAYS OF E&C	11% PER ANNUM INTEREST ON 90% OF THE VALUE OF PO FOR ONE MONTH	
			90% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPTAND ACCEPTANCE OF MATERIAL.  BALANCE 10% WITH IN 30 DAYS OF COMPLETION OF E&C AND ON SUBMISSION OF	90% PAYMENT AGAINT PROFORMA / DESPATCH DOCUMENT <b>OR</b> CASH ON DESPATCH (COD) / CASH AGAINST DESPATCH AND BALANCE 10% AFTER COMPLETION OF E&C	11% PER ANNUM INTEREST ON TOTAL PO VALUE FOR ONE MONTH	
			PERFORMANCE BANK GUARANTEE (PBG) FOR 10% OF BASIC PO VALUE.	90% ADVANCE PAYMENT WITH BANK GUARANTEE AND BALANCE 10% WITH IN 30 DAYS OF E&C	11% PER ANNUM INTEREST ON 90% OF THE TOTAL VALUE FOR DELIVERY PERIOD(ROUNDED OF TO THE NEAREST MONTH) + 1 MONTH	
	SUPPLY OF			PART ADVANCE (x%) PAYMENT WITH SUPPORTING BANK GUARANTEE AND (90 - x) % PAYMENT ON RECEIPT OF MATERIAL AND 10% PAYMENT WITH IN 30 DAYS AFTER E&C	11% PER ANNUM INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD(ROUNDED OF TO THE NEAREST MONTH)+ 1 MONTH AND 11% PER ANNUM INTEREST ON (90-X)% PAYMENT FOR ONE MONTH	
	Ñ	PAYMENT TI BANK GUAR ORDER VAL		PART ADVANCE (x%) PAYMENT WITH BANK GUARANTEE AND (90 - x) % PAYMENT ON RECEIPT OF MATERIAL AND 10% PAYMENT AFTER E&C	11% PER ANNUM INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD(ROUNDED OF TO THE NEAREST MONTH)+ 1 MONTH AND 11% PER ANNUM INTEREST ON BALANCE AMOUNT	
_			•	•	•	

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SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS		
			B. FOR FORE	IGN PURCHASES (IMPORTED)			
B.1				SAME	NIL		
	EQUIPMENT	PAYMENT TERMS	AGAINST SIGHT DRAFT ON PRESENTATION OF	100% PAYMENT AFTER RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R&D BY WIRE TRANSFER. (DESPATCH DOCUMENTS WILL BE SENT TO BHEL R&D DIRECTLY ALONG WITH BANK DETAILS)	NIL		
	P.	Ë	DESPATCH DOCUMENTS VIZ INVOICE, AWB ETC TO OUR BANKERS (ALL BANK CHARGES INSIDE INDIA TO BHEL ACCOUNT AND OUTSIDE INDIA	LC PAYMENT	11% PER ANNUM INTEREST ON THE BASIC VALUE FOR ONE MONTH		
	SUPPLY	AYME	WILL BE TO THE SUPPLIER'S ACCOUNT)	ADVANCE BY WIRE TRANSFER WITH BANK GUARANTEE	11% PER ANNUM INTEREST ON THE BASIC VALUE FOR DELIVERY PERIOD + 1 MONTH		
				PART ADVANCE (x% ) PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE PAYMENT AFTER RECEIPT OF MATL	11% PER ANNUM INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD+ 1 MONTH AND 11% PER ANNUM INTEREST ON BALANCE AMOUNT FOR ONE MONTH		
B.2	G E&C	ER ICE 10% ORDER 0.)		SAME	NIL		
	SUPPLY OF EQUIPMENT INCLUDING	PAYMENT TERMS (THE SUPPLIER MUST SUBMITT A PERFORMANCE BANK GUARANTEE (PBG) FOR 10% OF THE BASIC VALUE OF THE ORDER VALID FOR WARRANTY PERIOD.)	90% PAYMENT WILL BE MADE WITH IN 30 DAYS	LC PAYMENT FOR 90% OF THE ORDER VALUE + 10% AFTER E&C WITH IN 30 DAYS	11% PER ANNUM INTEREST ON 90% OF BASIC VALUE FOR ONE MONTH		
			EQUIPMENT IN ERMS (THE S INTT A PERFC ANTEE (PBC GIC VALUE O NARRANTY	ERMS (THE SANTER PROPERTING STATE (PB SIC VALUE O WARRANTY	FROM THE DATE OF RECEIPT OF MATERIAL OF ACCEPTANCE AND BALANCE 10% WITH IN 30  ON A CHILD AND AND AND AND AND AND AND AND AND AN	90% OF BASIC VALUE AS ADVANCE BY WIRE TRANSFER WITH BANK GUARANTEE AND BALANCE 10% AFTER E&C BY WIRE TRANSFER WITH IN 30 DAYS	11% PER ANNUM INTEREST ON 90% OF THE BASIC VALUE FOR DELIVERY PERIOD + 1 MONTH
				BANK GUARANTEE AND BALANCE (I.E. 90-X)AFTER	11% PER ANNUM INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD+ 1 MONTH AND 11% PER ANNUM INTEREST ON BALANCE AMOUNT OF 90% OF ORDER VALUE (I.E. 90-X%)		
			C. PERFORMANCE BANK GUARANTE	E, PBG ( COMMON FOR INDIGENOUS AND I	MPORTS)		
C.1		PERFORMANCE BANK GUARANTEE	PBG FOR 10% OF THE BASIC PO VALUE SHALL BE FURNISHED IN BHEL PRESCRIBED FORMAT.	IF NOT AGREED	10% OF THE BASIC MATERIAL COST		
		•	D. PENALTY (COMM	ION FOR INDEGENOUS & IMPORTS)			
D.1		LD CLAUSE	IN THE EVENT OF DELAY IN AGREED CONTRACTUAL DELIVERY, PENALTY OF 0.5% ( HALF PERCENT) PER WEEK BUT LIMITED TO A MAX OF 10% VALUE OF UNDELIVERED PORTION OF BASIC MATERIAL COST WILL BE APPLICABLE	AGREED	NIL		
				IF NOT AGREED	10% OF THE BASIC MATL COST		
				IF AGREED FOR 5% OTHER THAN THE ABOVE	5% OF THE BASIC MATERIAL COST  10% MINUS THE AGREED MAX PERCENTAGE OF THE BASIC MATERIAL COST WILL BE LOADED.		

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## BHARAT HEAVY ELECTRICALS LIMITED CORPORATE R&D Division Vikasnagar, Hyderabad – 500093, India.

### Suppliers' compliance statement to basic conditions of enquiry

(to be submitted along with Technical & Commercial bid)

Enquiry number:: Enquiry date::

(In case Order to be placed on Indian supplier in Indian currency)

	BHEL R& D's terms & Conditions	Supplier's compliance
		(indicate Yes/No. if 'No', state terms desired)
1) Validity of offer	Unless specifically mentioned in the enquiry, 90 days from the tender opening date	
2) Delivery	Free delivery at our stores or FOR destination (or as indicated in the enquiry)	F.O.R
requirements		Delivery: within weeks from PO date
3a) Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of despatch or 12 months from the date of commissioning, whichever is earlier	
3b) Manufacturer's Test report	Manufacturer's Test Report / Manufacturer's Test Certificate to be provided with Goods	
4) Terms of payment	Unless specifically mentioned, full payment will be made within thirty days after receipt, inspection and acceptance of the material at BHEL R&D (and where involved, erection and commissioning of the material/equipment at BHEL/destination), by EFT/RTGS with bank charges, if any, to supplier's account.	
5) Taxes & Duties	Unless specifically mentioned in the enquiry, we do not provide 'C' form. Supplier to specify rates of taxes/ duties element wise on the price quoted and related percentages. Please mention "NIL" if exempted and N.A if not applicable.	ED+ Cess : % Extra/ inclusive/ Nil/ NA VAT/ CST: : % Extra/ inclusive/ Nil/ NA Service Tax: : % Extra/ inclusive/ Nil/ NA
6) Penalty for late delivery	0.5% per week beyond the delivery date on undelivered portion subject to a maximum of 10% of the total order value	

<sup>\*</sup> BHEL R&D reserves the right to reject any offer due to non-compliance with the above Terms & conditions and/or non-receipt of this form in duly filled condition

<sup>\*</sup> Any other elements of cost in addition to the above may please be specified in detail.

### **AUTHORISATION LETTER FOR E-PAYMENT/ NEFT / RTGS**

(PLEASE FILL UP THE FORM COMPLETELY IN CAPITAL LETTERS ON YOUR COMPANY LETTERHEAD ONLY)

Тур	e of Request (Tick one)	NEW	CHANGE
	•		
BHE	L Vendor Code (to be filled by BHEL)		
1	Company Name		
2	Address		
3	City with PIN Code		
4	State		
5	PAN Number		
6	Name of Contact Person		
7	Phone no. with STD Code		
8	Fax No. with STD Code		
9	Email ID		
10	Website (URL)		
BAN	NK DETAILS FOR EFT / RTGS	1	
1	Bank Name		
2	Branch		
3	Branch Code		
4	Branch Address		
5	Branch Phone No.		
6	Account No.		
7	Account Type: SB/ Current/ other (S	Specify)	
8	MICR Code		
9	IFSC Code		

- I, as an authorized representative / owner of the above named company, hereby state as under:
  - 1. Enclosed here with a cancelled cheque in support of our company's bank details.
  - 2. Authorize BHEL R&D Hyderabad, to electronically make payments to the designated bank account with bank charges, if any, to our account.
  - 3. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
  - 4. I hereby certify that the particulars given above are true, complete and correct.
  - 5. This authority remains in full force until BHEL receives and acknowledge written notification requesting change or cancellation.

Authorised Signatory
Authorised Signatory
Designation:



### BHARAT HEAVY ELECTRICALS LTD.

Corp. R&D DIVISION VIKAS NAGAR, **HYDERABAD- 500 093 (INDIA)** 

Ph: 040 – 23772704, Fax: 040 – 23770698, email: mpx@bhelrnd.co.in

### **VENDOR REGISTRATION FORM**

(Indigenous supplier)

[FORM TO BE SUBMITTED\* BY THE BIDDER ALONG WITH TECHNICAL-BID]

	Before filling, please refer to instructions on page-4
VEN	DOR PROFILE:
1.1	Name and address of the vendor:
	Phone Nos.:
	Fax No.: Email: 1. 2.
1.2	Local representative name & address in Hyderabad/ Secunderabad:
	Phone Nos.: Fax No.: Email: Contact person: Mobile No.:
	VEN 1.1

### 2.0. TYPE OF ORGANIZATION:

PROPRIETORSHIP	COMPANY	SISTER CONCERN ( mention vendor registration number of main organization)	
	000000171011		ANN OTHER
PARTNERSHIP	CORPORATION	Small Scale Industry	ANY OTHER (Please specify)

In case of SSI unit, copy of registration to be enclosed.

3.0 ANNUAL TURN OVER:

#	Year	Turn-Over, Rs.
1	Current Year(budgeted)	
2	Previous year (200 - 0)	
3	Prior Year (200 - 0 )	

### 4.0 NAME AND ADDRESS OF THE BANKER:

- 4.1 Bank Name
- 4.2 Branch name
- 4.3 Account number
- 4.4 Account Type
- 4.5 MICR Code:
- 4.6 IFSC Code(RTGS/NEFT):
- 4.7 Bank Phone number(s),

Blank cheque, duly cancelled, to be enclosed.

Please note that all payments shall be made through Electronic clearance services to your above account against the orders executed, if any.

### **5.0** REGISTRATION PARTICULARS (relevant copies to be enclosed)

- 5.1 IT Permanent Account No.(PAN):
- 5.2 State sales tax/VAT Registration No.:
- 5.3 Central Sales Tax Registration No.
- 5.4 ED Registration No.
- 5.5 Service Tax Registration No.:
- 5.6 PF Account No.:
- 5.7 Labour Licence No.:
- 5.8 ESI Account No.:

### 6.0 CONTACT PERSON: S/Sri

Designation::: Phone/ Mobile No.:

### 7.0 TOTAL NUMBER OF EMPLOYEES:

TOTAL NOMBER OF LIMI LOTELO.				
Graduates (Engr./Scientists/	Consultants	Workers		
Mgmt/Fin.)		Sup./Skilled	Semiskilled	Unskilled

### 8.0 LIST OF PRODUCTS/ SERVICES OFFERED

#	Products/ Services	Capacity
1		
2		
3		
4		
5		
6		
7		

### 9.0 REFERENCE LIST:

### (Only recognized public and private sector companies, attach if printed copy available)

#	Customer	Volume / Year
1		
2		
3		
4		
5		
6		
7		

### 10.0 INFRASTRUCTURE / FACILITIES:

#	Facility (with specifications)	Age/ Year procured
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

### 11.0 REGISTRATION WITH OTHER BHEL UNIT/UNITS:

#	Unit	Registration No.	Year
1			
2			
3			
4			

### 12.0 ANY OTHER INFORMATION:

### **DECLARATION:**

The information furnished above is true and authentic.

(CEO / PROPRIETOR)

SEAL:

DATE:

### Note:

- 1. Registered bidders, having BHEL (R&D) registration no. or have submitted this format for registration, need not furnish this information again.
- 2. The competent authority reserves the right to accept or reject the registration.
- Vendors approved for registration will be informed by mail / email, as convenient. A separate communication will be sent in case of non-registration also, citing reasons thereof.
- 4. BHEL reserves the right to take penal action as deemed fit if any of the information provided by the vendor(s) is found to be incorrect.
- AGM, Head (MM) may be contacted for clarification/ additional information on registration.

### Instructions

- 1. Fill all items. Please mention "N.A." for items/ clauses not applicable.
- 2. Use A4 sheets for this document and the enclosures. Use of additional sheets is permitted if space provided is not adequate.
- 3. Attach copies of latest documents in respect of items 5.0 (Registration no.s)
- 4. Photographs of registered office and the chief executive/proprietor shall be furnished.



### BHARAT HEAVY ELECTRICALS LIMITED

### **CORPORATE R&D Division**

Vikasnagar, Hyderabad, Andhra Pradesh, India – 500093

### **IMPORTED**

### Suppliers' compliance statement to basic conditions of enquiry

(to be submitted along with Technical & Commercial bid)

Enquiry number: Enquiry dt:

(In case Order to be placed on the Principal and foreign currency)

Condition	BHEL R& D's terms	Supplier's compliance (indicate Yes/No. if 'No', state terms desired)
1. Validity of offer	90 days from the tender opening date ( or as per enquiry)	
2. Delivery requirements	FCA – Nearest International Airport (or as indicated in the enquiry)	F.C.A International Airport. Delivery: within weeks from PO date
3a) Warranty	Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/ commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier	
3b) Manufacturer's Test Report	Manufacturer's Test Report / Manufacturer's Test Certificate to be provided with Goods	
4. Terms of payment	Wire Transfer within 30 days of receipt of Material. All bank charges inside India will be to BHEL R&D account and outside India will be to the supplier's account.	
5. Agency commission	Pl specify Indian agency commission charges, if any, in percentage of quotation. The same shall be paid to the agency in Indian Currency only.	
6. Erection/Commission	As per enquiry	
7. Documentation	As per enquiry	
8. Insurance	BHEL will arrange Insurance based on intimation to our Insurance agency.  Address of the agency will be mentioned in the Purchase Order.	
9. Penalty for late delivery	0.5% per week beyond the delivery date on undelivered portion subject to a maximum of 10% of the total order value.	

<sup>\*</sup> BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

(Signature and Stamp/ Seal of Vendor)

<sup>\*</sup> Any other elements of cost in addition to the above may please be specified in detail



## BHARAT HEAVY ELECTRICALS LTD. Corp. R&D DIVISION VIKAS NAGAR, HYDERABAD- 500 093 (INDIA)

### SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR. WHEREVER IT IS NOT APPLICABLE PLEASE WRITE "NOT APPLICABLE". INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

### 1.0 GENERAL INFORMATION:

- 1.1 ....NAME OF COMPANY
- 1.2 ....DETAILS OF HEAD OFFICE:

ADDRESS

TELEPHONE:

FAX

.EMAIL :

.WEB SITE :

1.3 ....DETAILS OF FACTORY/WORKS:

ADDRESS

TELEPHONE

FAX :

.EMAIL

.WEB SITE :

1.4 ....DETAILS OF MARKETING AGENT

ADDRESS

TELEPHONE

.FAX :

.EMAIL :

.WEB SITE :

- 1.5 CHIEF EXECUTIVE
- 1.6 CONTACT PERSON(S)

FOR PRODUCT OFFERED

NAME(S)

OFFICIAL CPACITY

ADDRESS:

**TELEPHONE** 

FAX

E-MAIL

1.7 YEAR OF ESTABLISHMENT

### 1.8 PRODUCTION CAPACITY PER ANNUM

### 1.9 PARTICULARS OF PRODUCT INCLUDING SPECIFICATION AND RANGE OFFERED FOR REGISTRTION

(Attach brouchers and catalogues)

- 1.10 NAME(S) OF BANKERS
- 1.11 BANKER'S CERTIFICATE
- 1.12 PORT OF LOADING
- 1.13 NEAREST AIRPORT
- 1.14 NAME OF THE INDIAN AGENT, IF ANY WITH AUTHORIZATION LETTER

### 2.0 FINANCIAL INFORMATION

- 2.1 ... TOTAL CAPACITY
- 2.2 ... ANNUAL TURN OVER FOR LAST 3 YEARS
- 2.3 ... WHEHER CREDIT LICENSE ACCEPTABLE YES/NO

#### 3.0 **QUALITY MANAGEMENT SYSTEMS**

**ENCLOSED FORMAT PART-B** 

3.1 EXPERIENCE LIST FOR SAME/ SIMILAR ITEMS TO BE ENCLOSED

### **4.0 .....FUTURE EXPANSION PLANS:**

(Give details)

#### 5.0 LIST OF ENCLOSURES:

Including brouchers, catalogues, technical literature etc)

#### 6.0 ANY OTHER INFORMATION

SIGNATURE OF SUPPIER (Authorized signatory)

**NAME** 

**DESIGNATION** 

DATE

.....OFFICIAL SEAL

Note: 1. BHEL Reserves the right to take penal action as deemed fit if any of the information provided by the vendor is found to be incorrect.

<sup>2.</sup> Please attach separate sheets, if space found is inadequate