

REQUEST FOR QUOTATION



BHARAT HEAVY ELECTRICALS LIMITED
Electronics Division
PB No. 2606, Mysore Road Bangalore - 560026
INDIA

RFQ NUMBER:
AKSPROP046

RFQ DATE :
01.08.2023

Due Date/Day: 28.08.2023 MON
Time : 13:00 HRS

MMI:PU:RF:003

(address for communication) :

(for all correspondence)

Purchase Executive : ABHISHEK
Phone : 26998102
Fax : 00918026989215
E-mail: singh.abhishek@bhel.in

1)This RFQ is for entering into Rate contract (RC) with BHEL for the tendered item. Validity of the RC will be 1 year from the award of rate contract. Firm orders will be placed during the tenure of rate contract. Prices will remain firm till the validity of RC or till the completion of supplies against the Purchase Orders placed against this rate contract whichever is later. Please note that these quantities are projections based on the current business scenario and expected orders from customers. In the eventuality of business not coming through, BHEL is not obligated to exhaust the ordering of RC quantities.

2)Quantity distribution shall be applicable for the tendered item in the following manner:

L1 will be decided by considering total cost to BHEL and

- L1 bidder shall be awarded 60 % of tender quantity.
- L2 bidder shall be offered 40% of tender quantity.

NOTE: 40 % quantity shall be offered to L2 bidder at L1 unit rate. If L2 bidder do not agree to supply at L1 unit rate, BHEL may consider offering entire tender quantity to L1 bidder.

3)Reverse Auction Clause: BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.

SI No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	TI0668103833 VOLTAGE TRANSDUCER 2800V/50mA * HSN/SAC : 3921 [REDACTED] Inspection / Test Report VOLTAGE TRANSDUCER 2800V/50mA ± 15 to ± 24VDC [REDACTED] [REDACTED] As per Specification PS4452691 Rev No.00	1,250	NO	1,250	[REDACTED]

Total Number of Items - 1

-
-

NOTES:

1. This RFQ is governed by:

a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <http://edn.bhel.com> (RFQ-PO Terms & Conditions)

b) Any other specific Terms and Conditions mentioned.

* The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

ABHISHEK
Control Equipment

1 OF 2

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ABHISHEK
Control Equipment

2 OF 2



PREQUALIFICATION CRITERIA (PQC)
FOR VOLTAGE TRANSDUCER
GROUP: TRACTION ENGINEERING

Ref: 445/PQC_VT/23

Rev. No.: 01

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1.0 PRE QUALIFICATION CRITERIA (PQC)

1. The Bidder should be Supplier of Voltage transducer used in traction applications.
2. Bidder should be customer approved source for the subject item. BHEL shall approach and submit credentials/details furnished by vendor with their offers to customer and await customer's decision for a maximum of one month from the date of tender opening. If approval is not received within the above period, BHEL shall treat the offer as "Not meeting" Pre-qualification criteria and offer shall be rejected.
3. It is preferred that the bidder is the manufacturer of this item. If the bidder is importing some portion of the components, then minimum value addition shall be 20%. Bidder to confirm this in the offer. Value addition less than 20% is not acceptable. This clause is not applicable for Collaborator recommended suppliers.

2.0 DOCUMENTS SUBMISSION

1. Bidder to submit clause by clause compliance to complete technical specification (Technical specification no. PS4452691 Rev. No.00, dated 27.11.2020) along with copy of type test report.
2. Should possess a valid type test report, not older than five years, conducted at a NABL accredited laboratory as per relevant standards mentioned in the specification with respect to time during the bid submission.
3. For the vendors already qualified and added in the source list, the above point (point no. 2) is not applicable.

3.0 REFERENCE DOCUMENTS

- a) Purchase Specification No PS4452691, Rev. No. 00 for Voltage Transducer.

REVISION 01

APPROVED

AGOSH CHANDRAN R S

PREPARED

L SUNITHA

ISSUED

TRACTION ENGG

DATE

11.08.2023



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PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2691

REV. NO: 00

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REVISION HISTORY SHEET

REV. NO.	DATE	NATURE OF CHANGE	REASONS	PREPARED BY	APPROVED BY
00	27.11.20	FIRST ISSUE	--	--	--

THIS DOCUMENT IS A SPECIFICATION CUM DATA SHEET. VENDOR TO FILL UP ALL CONFIRMATIONS AND DATA AS REQUIRED AND SUBMIT THE SAME TO BHEL / EDN, BANGALORE. ANY DEVIATIONS TO THIS DOCUMENT TO BE BROUGHT OUT CLEARLY BY VENDOR.

REVISIONS 00 DT: 27.11.2020

APPROVED BY:

PREPARED BY:

Agosh Chandran R S
Manager/Traction Engg

ISSUED BY

TE

DATE

27.11.2020



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PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2691

REV. NO: 00

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SPECIFICATION FOR
VOLTAGE TRANSDUCER



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PURCHASE SPECIFICATION

GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2691

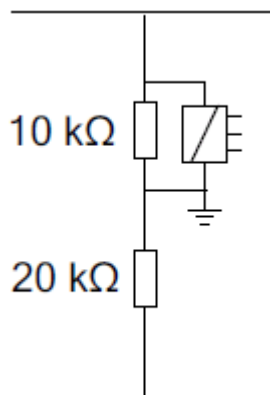
REV. NO: 00

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1.0 INTRODUCTION:

The traction converter employs an earth fault detection circuit for detecting earth faults in DC and AC. It consists of a resistor divider network and a **Voltage Transducer**. The **Voltage Transducer** is an Electronic Sensor of DC voltage with a galvanic isolation between the primary and secondary circuits. A positive differential voltage at the primary should result in a positive output current from the Measurement terminal.

2.0 FUNCTION:



The asymmetrical voltage divider network is used for detecting earth faults. The measurement of **Voltage Transducer** is continuously compared with the DC link voltage to detect any earth fault in the DC link or in the Motor/Transformer connections.

3.0 PROTECTIONS

The electronic circuits should be properly coated and should be housed in a self-extinguishing plastic case conforming to UL94-V0. The Earth Fault Transducer should be protected against polarity reversal of Power Supply, Short Circuits in the measuring circuit and sudden opening of the measuring circuit. The Earth Fault Transducer should have high immunity to external interferences and low temperature drift considering the very harsh operating environment in an Electric locomotive.



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PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2691

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4.0 CHARACTERISTICS

SI No	Characteristic	Value	Unit
1	Nominal Primary Voltage, U_{PN}	2800	V
2	Measuring Range, $U_{P \max}$	± 4200	V
3	Max Measuring Resistance	133	Ω , @ $U_{P \max} / \pm 24 (\pm 5\%)$
4	Min Measuring Resistance	0	Ω , @ $U_{PN} / \pm 24 (\pm 5\%)$
5	Secondary current at U_{PN}	50	mA
6	Accuracy at U_{PN}	± 1.5	%, -25 to +70°C
7	Accuracy at U_{PN}	± 1.7	%, -40 to +85°C
8	Offset Current	± 50	μA
9	Linearity Error	± 0.1	%, over ± 4200 range
10	Bandwidth	0...12 (-3 db)	kHz
11	Supply Voltage	$\pm 24 (\pm 5\%)$	V d.c
12	Operating Temperature	-40 to +85	°C
13	Storage & Staring Temperature	-50 to +90	°C

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5.0 INSPECTION

The type test reports from a NABL accredited laboratory to be provided along with the technical offer. For series supplies, Routine test reports are to be provided.

6.0 APPLICABLE NORMATIVE STANDARD

The offered system shall generally conform to the following normative standards

- IEC 60529 for IP68 protection
- EN 50155 Railway applications electronics equipment used on rolling stock
- EN 50121-2 EMC: Emissions to external environments
- IEC60077 Rules for equipment for onboard rail vehicles
- IEC 60571 Rules for electronic equipment onboard rail vehicles
- IEC-61373 Electric Railway Equipment-Rolling Stock-Shock & Vibrations Requirements