

REQUEST FOR QUOTATION



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

RFQ NUMBER:
AKSPROP109

MMI:PU:RF:003

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This RFQ is for entering into Rate contract for 1 year.

Sl No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	TI0668086211 WTB-MVB Gateway Module * HSN/SAC : 9032 [REDACTED] [REDACTED] [REDACTED] Test Certificate WTB-MVB Gateway Module along with the mating connectors and accessories required for Power, Communication and Service ports As per Specification PS4452712 Rev No 02	250	NO	250	30.05.2025

Total Number of Items - 1

- 1.
- 2.

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 1

1. SCOPE

The Pre-Qualification Requirement document specifies the requirements to be met by the vendors (hereafter called Bidder) who wish to participate in the tender for supply of **WTB to MVB Gateway for rolling stock applications**.

This PQR should be read in conjunction with the Purchase Technical Specification **PS4452712 R02 dtd 23.05.2022**.

2. CREDENTIAL

- a) The Bidder should be Manufacturer or authorized dealer / supplier of - **WTB to MVB Gateway** used in Rolling Stock applications. Documentary proof like relevant POs / invoice copies, valid authorization certificate etc shall be provided along with the offer.
- b) The Rolling Stock Applications under consideration shall include Locomotive, EMU, MEMU, Metro Trains, High Speed Trains, Train sets, Inspection Cars and Special Track Machines.
- c) For the vendors outside India, documentary proof for usage of the product in rolling stock applications shall be submitted. Acceptance of such certification shall be at BHEL's discretion.
- d) The Bidder should not be under the category of "hold" or "blacklisted" by any of the BHEL units/ any Govt of India PSU/ Govt of India/ statutory bodies of any state Govt as on date of bid submission. A declaration to this effect shall be submitted along with the offer.

3. QUALITY SYSTEM

- a) The manufacturer should have valid ISO 9001:2015 or latest certification covering the manufacturing and testing of the subject item
- b) The manufacturer should possess a clearly laid down quality Assurance Plan for the product covering the following aspects
Organization Chart, clearly indication the quality control set up
Qualification of key personnel and officials deployed in the quality control cell.
- c) Process Flow Chart indicating process of manufacture for an individual product or for a family of products, if the process is same.
- d) Quality Assurance System – Inspection and Testing plan to cover
 - Incoming material
 - Process control
 - Product control
 - System control
 - Testing facility
- e) Stage inspection details shall include the inspection procedure, inspection parameters, method of testing/ test procedure, sample sizes for destructive & non-destructive testing etc.
- f) Calibration scheme and status of calibration of test equipment
The process, testing and measuring equipment shall be duly calibrated by approved agency and the validity of calibration should be current.

4. GENERAL REQUIREMENTS

- a) 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 in India shall be 20%. Bidder to confirm this in the offer. Value addition less than 20% is not acceptable. A declaration to this effect shall be submitted along with the offer.
- b) The technical bid of bidders, which qualify technically but are not approved for the subject item by the Customer Approving Authority, shall be referred by BHEL to the customer Approving Authority for approval with intimation to the bidder. Consequent to the decision of Customer Approving Authority, the bidder shall be added to the vendor list of the subject item for future tenders. Concurrently BHEL shall consider placing developmental order on the bidder after accessing the capability of the bidder to manufacture / develop the subject item. However, BHEL shall treat the offer as “Not meeting” Pre-Qualification Criteria for the subject tender.
- c) The Customer Approving Authority shall be RDSO/CLW/BLW/PLW/ICF/RCF/MCF or any other agency as designated by the Customer.
- d) The bidder should possess a valid type test report, not older than five years, as per relevant standards mentioned in the specification with respect to time during the bid submission in case of catalog items. In case of custom made items, a bidder can submit the type test report of an item of similar or higher rating with a declaration for conducting the type test in case of award of order or developmental order. The bidder can also submit the test reports conducted in their own facility with the document of their lab accreditation. However, BHEL reserve it's right to insist on conducting the Type test again in a laboratory of it's choice.
- e) For the bid of vendors already qualified and appearing in BHEL's source list, the requirement of type test report and proof of supply shall not be applicable.

5. DOCUMENTATION TO BE SUBMITTED ALONG WITH OFFER

- a) Documentary proof for experience as per clause 2.a
- b) Clause by Clause compliance to the technical specification
- c) Declaration regarding status as per clause 2.d
- d) Declaration on MII (Make in India) as per clause 3.a
- e) Declaration for conducting Type Test as per clause 3.d



A4 - 12

PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2712

REV. NO: 02

PAGE 00 OF 04

REVISION HISTORY SHEET

REV. NO	DATE	NATURE OF CHANGE	REASONS	PREPARED BY	APPROVED BY
00	02.02.2021	FIRST ISSUE	--	L Sunitha	R S Agosh Chandran
01	24.02.2021	Minor changes	--	L Sunitha	R S Agosh Chandran
02	23.05.2022	Minor changes	--	L Sunitha	R S Agosh Chandran

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 02 DT: 23.05.2022

APPROVED BY:

Agosh Chandran R S, Manager/TE

PREPARED BY:

ISSUED BY

DATE

L Sunitha
Dy Manager/TE

TE

23.05.2022



A4 – 10

PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2712

REV. NO: 02

PAGE 01 OF 04

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SPECIFICATION FOR
WTB TO MVB GATEWAY



A4 – 11

PURCHASE SPECIFICATION

GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2712

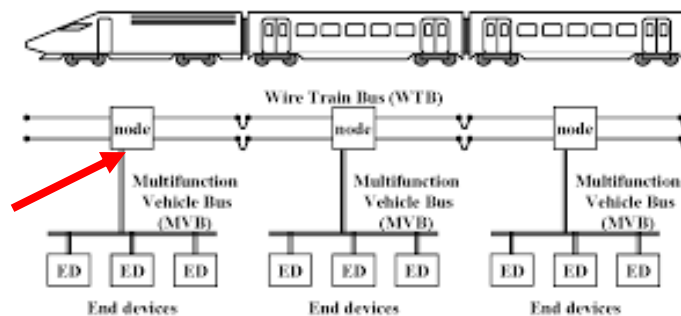
REV.NO: 02

PAGE 02 OF 04

1.0 INTRODUCTION:

Purpose of this technical specification document is to give requirement information about WTB to MVB Gateway used in AC locomotives for Train Communication Network.

2.0 FUNCTION:



A Gateway is a hardware device that acts as a "gate" between two networks.

The WTB to Vehicle Bus Gateway family is a group of devices developed to connect the Wire Train Bus (WTB) to the common on board vehicle buses used in railway application. WTB to MVB Gateway is used to connect the Wire Train Bus (WTB) to the Multifunctional Vehicle Bus (MVB). Its main application is to act as a vehicle node for IEC 61375 and UIC556 application.

WTB to MVB Gateway should be equipped of Voting Unit (VU) module for complete redundancy application and "sleep" function, "fritting" unit module on WTB and digital I/O module (Max 16 in and 4 out).

In compliance with UIC556 (information transmission in the train) the gateways should implement: the inauguration procedure, the mapping server, the Process Data Marshalling (PDM) and the management of static and dynamic properties.

The core of every gateway implements the Real Time Protocol (RTP) for message routing as required in IEC 61375-1 (Train communication network).

Supplier should support BHEL in understanding, commissioning and troubleshooting the tool required for WTB and MVB configuration database required for the gateway.



A4 – 11

PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2712

REV. NO: 02

PAGE 03 OF 04

3.0 CHARACTERISTICS

S. No.	Parameter	Value
1	Power Supply	a) 72V DC to 137.5V DC b) Reverse polarity protection c) Thermal shutdown protection d) Over-voltage protection e) Under-voltage protection
2	Operating Environment	a) Operating temperature -40°C to +70°C. b) Storage temperature -40°C to +85°C c) Relative humidity: <= 75% average and <= 95% for 30 consecutive days in a year d) Any moisture condensation not leads to any malfunction or failure.
3	Operating system	Latest Windows, or Linux based OS
4	CPU	Low power type, because of the high ambient temperature
5	Memory	RAM: Min 1 MB
6	Dimensions	145 (W) x 130 (H) x 175 (D) mm
7	Construction	a) Casing and connector panel: High-grade steel, matt pickled
8	IP Rating	IP-20
9	Reliability, Maintainability, Lifetime	a) MTBF > 50,000 hours b) Lifetime > 15 years
10	Interfaces	a) RS232 interface b) I/O interface (with various type of connector) c) 2 WTB line (4 D-connector) d) Vehicle Bus interface: ➤ MVB with ESD, EMD, OGF functionality ➤ Ethernet connection ➤ CAN connection
11	PCBs	Printed Circuit Boards must have conformal coating as relative humidity > 95%, and during 3-4 months of rainy season per year frequent condensation can occur.
12	Applicable standards	EN 50155, EN 50121-3-2, IEC-60571, EN61373, IEC 61375
13	Power consumption	20W max
14	Weight	Approx. 2kg
15	WTB transmission distance	Upto 850m
16	WTB maximum configuration	Upto 32 nodes
17	Maximum trainset length	Upto 6 vehicles for one node
18	WTB data transmission rate	1 Mbps
19	MVB data transmission rate	1.5 Mbps
20	Installation	Rack mounted

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A4 – 11

PURCHASE SPECIFICATION
GROUP: TRACTION ENGINEERING

P.S NO. : PS/445/2712

REV. NO: 02

PAGE 04 OF 04

4.0 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.

5.0 APPLICABLE NORMATIVE STANDARD

The offered system shall generally conform to the following normative standards

- IEC 60529 for IP68 protection
- EN 50121-2 EMC: Emissions to external environments
- IEC 60077 Rules for equipment for onboard rail vehicles
- IEC 61287 Power Converters on board rolling stock
- IEC 61373 Electric Railway Equipment-Rolling Stock-Shock & Vibrations Requirements

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