





BHARAT HEAVY ELECTRICAL LIMITED  
TRANSPORTATION SYSTEMS GROUP & CENTRE FOR ELECTRIC TRANSPORTATION  
UNIT'S ADDRESS: PIPLANI, BHOPAL

**SPECIFICATION CUM COMPLIANCE CERTIFICATION**  
**FOR**

**MICROCONTROLLER BASED ELECTRONIC SPEED INDICATING AND RECORDING SYSTEM FOR  
DIESEL ELECTRIC TOWER CAR (DETC)**

**SPECIFICATION NO: TSG/3.5/SP0004/T01**

REVISION	DATE	PREPARED BY	APPROVED BY
01	02/02/2019	 RAMAKANT YADAV	 NASEAM H. JAFRI

ADDRESS OF THE SUPPLIER : \_\_\_\_\_

TELEPHONE NOS.: \_\_\_\_\_

FAX NOS.: \_\_\_\_\_

E-MAIL ADDRESS : \_\_\_\_\_

SNO	DESCRIPTION	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
<b>1.0</b>	<b>PURPOSE :</b>				
1.1	This technical requirements cover micro controller based electronic speed indicating and recording system for application on 700 HP underslung Diesel Electric Tower Car (DETC).	vendor to confirm			
	These technical requirements cover basic features of equipment. It is the responsibility of the manufacturer/supplier to develop circuit/detail design to meet the requirements of this specification.				
<b>2.0</b>	<b>SCOPE OF SUPPLY</b>				
2.1	Micro controller based electronic speed indicating and recording system for application on 700 HP underslung Diesel Electric Tower Car (DETC) consisting of followings:	vendor to confirm			
	(a) Recorder cum indicator (b) Speed indicator. (c) Junction box				

	(d) Speed sensor (e) Interconnection cabling with connectors as per below details:																									
	<p><b>Interconnecting cable details:</b></p> <table border="1"> <thead> <tr> <th>From</th> <th>To</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>Recorder cum indicator</td> <td>Speed Indicator</td> <td>35 mtr</td> </tr> <tr> <td>Recorder cum indicator</td> <td>Power supply</td> <td>7 mtr</td> </tr> <tr> <td>Speed Indicator</td> <td>Power supply</td> <td>7 mtr</td> </tr> <tr> <td>Recorder cum indicator</td> <td>Junction Box</td> <td>7 mtr</td> </tr> <tr> <td>Junction Box</td> <td>Speed sensor</td> <td>1.5 mtr</td> </tr> <tr> <td>Recorder cum indicator</td> <td>Speed dependent contact</td> <td>7 mtr</td> </tr> </tbody> </table>					From	To	Length	Recorder cum indicator	Speed Indicator	35 mtr	Recorder cum indicator	Power supply	7 mtr	Speed Indicator	Power supply	7 mtr	Recorder cum indicator	Junction Box	7 mtr	Junction Box	Speed sensor	1.5 mtr	Recorder cum indicator	Speed dependent contact	7 mtr
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	(e) Mounting accessories																									
	The offered Micro controller based electronic speed indicating and recording system shall meet all the requirement of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest.																									
<b>3.0</b>	<b>TECHNICAL DETAILS:</b>																									
3.1	<b>Service conditions:</b> Service conditions shall be as per clause no. 4 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest.	vendor to confirm																								
3.2	<b>General Requirements:</b> It shall be as per clause no. 2 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest	vendor to confirm																								
3.3	<b>Mounting:</b> Mounting shall be as per clause no. 3 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest	vendor to confirm																								
3.4	<b>Technical requirements:</b> Technical requirement shall be as per clause no. 5 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest.	vendor to confirm																								
3.5	<b>Equipment Voltage:</b> Supply voltage for the equipment is 110V DC. The	vendor to																								

	limits of variations of voltages in which the equipment shall operate satisfactorily is 70 to 125 V DC.	confirm																
1.6	<b>Scale range:</b> Speed indicators/recorders shall be for speed scale ranges of 0 - 160 Km/h.	vendor to confirm																
1.7	<b>Speed dependent output relays contacts:</b> The equipment shall have the speed dependent output relays with potential-less contacts as per following details:	vendor to confirm																
	<table border="1"> <thead> <tr> <th>Sl.</th> <th>Speed</th> <th>Potential free relay contact</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0-2 KPH</td> <td>NC</td> </tr> <tr> <td>2</td> <td>10 KPH</td> <td>NO</td> </tr> <tr> <td>3</td> <td>15 KPH</td> <td>NO</td> </tr> <tr> <td>4</td> <td>58 /110 KPH</td> <td>NO</td> </tr> </tbody> </table>	Sl.	Speed	Potential free relay contact	1	0-2 KPH	NC	2	10 KPH	NO	3	15 KPH	NO	4	58 /110 KPH	NO		
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1	0-2 KPH	NC																
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4.0	<b>COMPLIANCE WITH NATIONAL / INTERNATIONAL STANDARD:</b>																	
4.1	It shall be as per clause no. 16 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest	vendor to confirm																
5.0	<b>TOOLS:</b>	NA																
6.0	<b>QUALIFYING CRITERIA</b>																	
6.1	Vendor should have approved supplier of Indian Railway and shall supplied at least 25 no. working successfully for at least 2 years. Documentary proof for the same shall be submitted by the successful vendor.	vendor to confirm																
6.2	Vendor should be either original equipment manufacturer (OEM) or authorized by original equipment manufacturer (OEM) to quote, accept orders, and conduct all required sales & after sales support on their behalf. Valid authorization letter should be submitted along with offer.	vendor to confirm																

	If the vendor is not the OEM of system, then the vendor shall have technical tie up / collaboration or joint venture with the OEM and shall submit documentary evidence to the satisfactory of Railways/BHEL.				
<b>7.0</b>	<b>ERECTION AND COMMISSIONING</b>		NA		
<b>8.0</b>	<b>INSPECTION AND TESTING</b>				
8.1	Inspection shall be as per clause no. 6 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest		vendor to confirm		
8.2	All the routine and investigation test and performance shall be as per clause no. 7, 8, 9, 10 & 11 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest.		vendor to confirm		
8.3	Type test certificates shall be submitted by successful vendors.		vendor to confirm		
<b>9.0</b>	<b>APPROVALS FOR DESPATCH CLEARANCE:</b>				
9.1	Material shall be dispatched only after dispatch clearance from BHEL.		vendor to confirm		
<b>10.0</b>	<b>MARKING</b>				
10.1	Marking shall be as per clause no. 6 of railway spec no. MP.0.3700.07 (Rev.07) of Aug'2017 or latest.		vendor to confirm		
<b>11.0</b>	<b>DOCUMENTATIONS</b>				
11.1	Documents shall be as per clause no. 13&14 of railway spec no. MP.0.3700.07 (Rev.05) of Aug'2008 or latest.		vendor to confirm		
<b>12.0</b>	<b>TRAINING:</b>		NA		
<b>13.0</b>	<b>SPARES:</b>		NA		

<b>14.0</b>	<b>WARRANTY/GUARANTEE:</b>						
14.1	The contractor (s) shall, at his (their) expense, replace any part of the equipment failing or proving unsatisfactory in service and attributed to defective/ faulty design, defective material or bad workmanship, within a period of 24 months from date of commissioning at ICF or 30 months from date of supply of all equipment as a set duly inspected whichever is earlier. The period of warranty shall stand extended by the duration for which the device remains inoperative under exercise of this clause. Further, should any design modification be made in the equipment as a result of defect/fault/shortcomings in the original design, the period of 24 months would commence from the modified part is commissioned into service.			vendor to confirm			
<b>15.0</b>	<b>INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS:</b>						
15.1	BHEL/Indian railway shall not be responsible for infringement of patent rights arising due to similarity in design, manufacturing process, use of components, use in design, Development and manufacturing of batteries and any other factors, which may cause such dispute. In this connection, the entire responsibility to settle any issue wholly rest with the vendor.			vendor to confirm			
<b>16.0</b>	<b>REVISION HISTORY</b>						
16.1							
	<b>S.No</b>	<b>Revision no.</b>	<b>Date</b>	<b>Reason for Revision</b>			
	1.	01	05/03/2017	Original issue			
	2.	02	02/02/2019	Modified for DETC			