

Annexure-A for MSDAC (Item no-1501)

1. Multi Section Digital Axle Counter (MSDAC) system shall comprise of Axle detectors, DAC field unit, Central evaluator, Reset unit, Soft Reset, relay unit, event logger, diagnostic terminal and line verification box confirming to RDSO specification no. RDSO/SPN/176/2013, Ver.3 or latest (Inspection by RDSO).
2. OEM supplied/certified Pre-Fabricated Rack with power supply arrangement for Evaluator (Inspection by RDSO) which is to be supplied along with system (Para 5.5.1) of RDSO specification no. RDSO/SPN/ 176/2013, Ver.3 or latest.
3. OEM supplied/certified Reset Box as per drawing no RSDO/S/20001 (Inspection by RDSO), as required.
4. OEM supplied / certified Tool Kit with marking Zig (One set for every 20 DP or part thereof) consisting of all tools and measuring instruments required for installation, testing, failure attention and all types of maintenance of MSDAC; to be supplied with consignee inspection along with main equipment confirming to item no. 20 of RDSO specification no. RDSO/SPN/176/2013, Ver.3 as updated by RDSO from time to time.
5. OEM supplied Line Verification Boxes as per drawing no. RDSO/S/20002, as required. (Inspection by RDSO).
6. OEM supplied / certified Mushroom cover/ Half apparatus case(s) (If required for installation) for track-side equipments / each detection point housing (Inspection by RDSO for OEM supplied/certified Mushroom cover; Consignee/RITES for half apparatus case as per latest Railway Board guideline on Inspection of Material). Quantity of Mushroom Cover/Half apparatus case shall be the same as that of detection point. Half Apparatus Case to be supplied as per drawing GKP TYPE DRAWING NO.SE/FE/2004/21.
7. OEM recommended lightning and surge protection devices for all sub-systems as per RDSO specification no. RDSO/SPN/144/2006. (Inspection by RDSO) as per Para 5.0.24 of RDSO/SPN/176).
8. Instruction manuals, installation manual & maintenance manuals including DO's Don'ts, mechanical drawing for each subsystem, schematic block diagram showing mounting arrangement of various component &, details of each type of assembled PCB, troubleshooting manual, pre-commissioning check list and other technical information regarding MSDAC supplied (As per item no. 18 of RDSO specification no. RDSO/SPN/176/2013, Ver.3 as updated by RDSO from time to time).
9. Supply of Event logger (In-Built) & diagnostic terminal with monitoring software (one set). A) Event logger Diagnostic software (Inspection by RDSO). (One Set per evaluator Rack in separate Pen drive as per Para 5.9.1 of RDSO/ SPN/176). b) Event logger Diagnostic PC (Inspection by consignee) — One system per location as per the scheme as per following specification: i. CPU: Intel i7 or latest ii. Processor Family: 12th Generation or higher m. Cache: 8 MB or higher iv. RAM: Minimum 8 GB, DDR-4 or better v. Hard Disc Drive — Min 1 TB SSD vi. Parts — 2 serials, 2 USB-2, 2 USB-3, 2 PCI slot vii. Monitor 22 inch LED flat panel, resolution 1920x1080 at 60 Hz or better vm. Network Interface: Integrated 10/100/1000 GbE LAN ix. Wireless: 802.11a/b/g/n Wi-Fi and Bluetooth x. Keyboard: QWERTY xi. Optical scroll mouse xii. Optical Drive: DVD xm. Audio: 2.1 speaker; xiv. Antivirus single license for 3 years for single user; xv. Operating System-Windows 10 or latest pre-loaded with license and MS office 2018 or higher with license and media. xvi. Connecting cord between Evaluator and PC; xvii. Suggested make Compaq, I-IP, Lenovo, Dell, Acer or Wipro 27' Display.

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10. LaserJet printer (size A4, minimum 20 copies per minute, black and white) suggested brand- DP/DELL/CANON (Inspection by consignee)- Along with each Diagnostic PC.
11. Table: Godrej make interio Companion C3 Engineered Wood computer desk or similar (Inspected by consignee). (1 No per Location)
12. Chair: Godrej make PCH-7003 premium Executive chair or Similar (Inspected by consignee). (1 No per location)
13. All empty slots in the card-file shall have dummy cards fitted to prevent entry of lizards etc.
14. Railway will provide 24V DC from IPS in N+1 configuration for Main and Dual (Redundant) evaluator, reset box and DP. Additional power supply modules (from RDSO approved source), if required, shall be arranged by the OEM.
15. The warranty of the equipment shall be 2 YEARS from the date of commissioning.
 - a) During the period of warranty, the supplier shall remain responsible to arrange for replacement and for getting right at his own cost of any equipment supplied by him which is defective during manufacturing or defective in design or due to defective material component or due to any cause whatsoever.
 - b) All replacement and repair that the Railway shall call upon the supplier to perform under this warranty period within one month.
16. The supplier will submit the following documents along with the supply. Breakup of number of each cards /modules & other accessories for each location as per Table given below-
SN Description of Card / Sub-assembly/items Part No Unit Quantity in No. In the break up, module wise rates, inspection authority and quantity should be given in a separate sheet.
17. Cable length of track device (5, 10, 15 meters) shall be indicated by the purchaser in the inspection call letter.
18. Materials, which are not in the list of RDSO, shall be inspected by the Consignee.
19. Payment Terms- 60% on the supply of material, 30% on installation, wiring and testing of evaluators and DPs, and balance 10% on commissioning of MSDAC.
20. As per RDSO Spec. cl. 5.4.2. VDU/Rest box can be used for resetting. At stations having more than 10 Track sections, the Railway proposes to use a separate VDU- based resetting system. Such a VDU- based system if using a PC, it must be industrial grade. However, if such a system is not developed by some OEMs, use of reset boxes can be permitted subject to conditions that all reset boxes shall be provided in 19" standard 42U or suitable size rack of Rittal or similar make. Size of reset boxes can be modified to suit local requirements of availability of space in existing rooms. Permission to use reset boxes for complete yard will be available only for one year of issue of this policy as some OEMs are still developing VDU based resetting. For VDU based resetting, separate scheme/typical issued by HQ shall be followed.

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Installation, wiring, testing and commissioning of MSDAC**Annexure-B**

1. This includes installation, wiring, testing and commissioning of complete MSDAC system which includes track circuit electronics and its all accessories (track electronics unit, central evaluator and its accessories/interface device, if any). All the tools and plants for installation has to be arranged by the contractor. Wiring from cable termination rack to the central evaluator, installation and wiring the reset.
2. All execution/installation materials as required to be supplied by the contractor.
3. Installation, testing and commissioning of MSDAC to be done by OEM'S certified engineer.
4. Precommissioning checklist issued by RDSO for MSDAC will be prepared by OEM's engineer and to be signed jointly with Rly engineer incharge.
5. OEM'S engineer will also impart training to Rly. staff at site for proper functioning /working and applications of MSDAC.
6. Training on installations, maintenance & trouble shooting shall be imparted to Railway Personnel at site or at OEM's premises (20 man-days per station).
 - a) Training shall be organized for OL and Project/Construction staff & officers through the OEM before commissioning of work and proper record shall be maintained.
 - b) During the training each of the attendee shall be given a copy of the training manual and copies of the approved document without any exception.
7. Foundation, erection and earthing of Track side Equipment i.e. Mushroom/ Location Box (if required), **In case the track side equipment is fixed in the location box.**
8. Individual Earthing of all detection Points shall be provided by the tenderer if required by the OEM. The earth value shall be within the limits recommended by the OEM & those shall be certified by OEM site engineer. If required, multiple earth-pits to be installed to bring earth value within limit, in each location. This includes supply & installation of maintenance free earth materials and exothermic bonding and other connecting cable etc. as per Railway practice (As per RDSO guidelines/TAN).
9. Installation of Event logger & diagnostic terminal with monitoring software at Maintainers room and connectivity from evaluator to Diagnostic terminal.
10. Submission and approval of documents.
 - a) The following documents, in addition to the documents specified in item no. 18 of RDSO specification no. RDSO/SPN/ 176/ 2013, Ver.3 as updated by RDSO from time to time, shall be submitted by the agency to the field unit for approval before commencement of actual work.
 - i) Evaluator summary, DP summary and evaluator communication summary.
 - ii) MSDAC DP plan.
 - iii) Rack-wise evaluator allotment plan.
 - iv) Wiring Diagram.
 - v) MSDAC DP connection between 2 CTRs.
 - vi) Reset box disposition & resetting arrangement.
 - vii) Pre-commissioning check list regarding MSDAC supplied.
 - viii) Power supply diagram for evaluators and DPs.
 - b) Hard copy and soft copy in PDF and autocad format shall be submitted.
11. Materials, which are not in the list of RDSO shall be inspected by the Consignee.
12. Interface wiring with datalogger shall be done.
13. All materials, wires required for installation of Reset box like cabinet etc.

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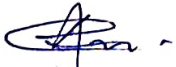
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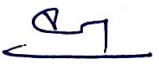
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14. Wiring of final relay to CTR to be done.
15. Power wiring from power distribution panel/IPS to be done.
16. Retroreflective tape on deflector to be provided.
17. Payment terms- 80% on installation, wiring, testing of evaluators and DPS, balance 20% on commissioning.



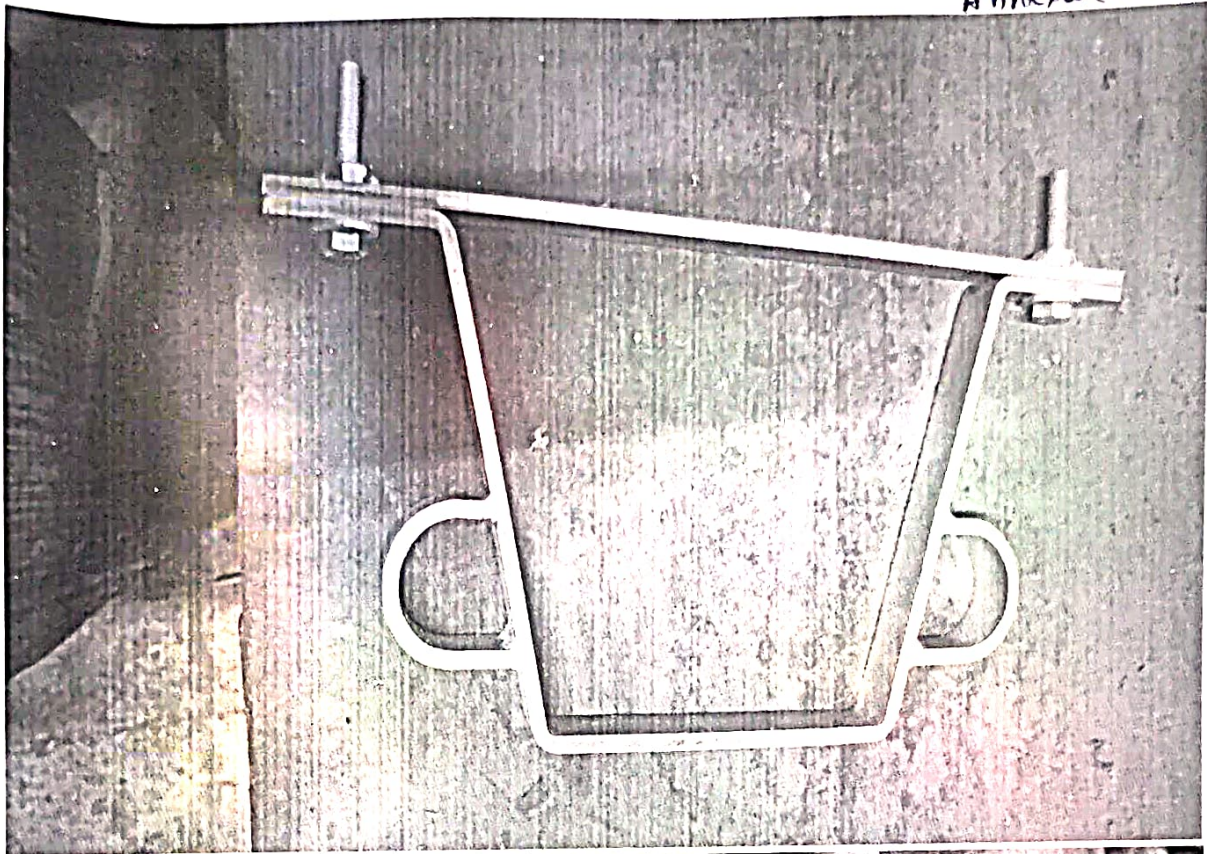
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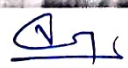
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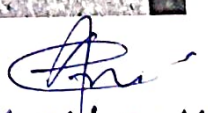
Annexure-C

Spare cards for item no- 1508 for Dual Redundant Mux



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