

Special Conditions of contract (Electronic Interlocking)

1. General:

Scope of works includes alteration in the existing Hitachi make EI as per attached locations. This includes provision of DC track circuits in parallel with MSDAC, provision of the auto reset(output bit) of MSDAC through EI, Provision of WLR (output bit) for point, any other alterations as per railway requirement, modification in the input/output bit and modification in the application logic as per approved bit chart and interface circuits etc. It will be the responsibility of the tenderer to commission the complete installation with all indoor & outside gears as per the standard practice.

2. All other works inside the building shall be done (i.e. connection of cables from EI to Power room, power room to panel room, etc.) by the tenderer taking due care.

3. Installation, testing and commissioning:

The installation of the equipment including software loading and required data input etc. will be done by the contractor/OEM in the Railway premises. Testing and commissioning of the EI system will be done by the OEM, jointly with the Railway Engineer. The Tenderer shall depute competent Engineer/qualified staff for the same. The Tenderer shall submit a detailed commissioning Test Schedule for Railway's approval and full record of test conducted shall be maintained by the Tenderer and handed over to the Railway along with commissioning.

4. The Pre-commissioning checklist issued by RDSO for EI system, related with modification/alteration in the existing EI will be prepared by OEM's engineer and signed jointly with Railway Engineer. Before commissioning of EI System, OEM will submit Site Installation Certificate to Railway by mentioning that EI system has been installed, wired, tested and fit for commissioning.

5. Work to be done by the Railways:

5.1 Making available railway personnel for inspection and joint testing and commissioning.

5.2 The tenderer shall undertake study/survey of signalling systems/practices used in South Eastern Railway and make his own scheme (prior approval to be taken before implementation) of the interlocking work involved in integration of the indoor equipment with outdoor equipment. Any equipment/design/component needed to make the entire system successful/functional will be supplied by the tenderer without any extra cost.

6. Future Development:

The contractor shall supply to the railway free of charge all software update, data and specifications that may result from developments affected by him or his collaborator in the period of currency of contract. The Railway reserves the right for such modified or improved versions in lieu of these originally quoted for, based on prices and other conditions mutually agreed upon

7. Separate colour wire preferable yellow colour for relay wiring has to be used for “Datalogger” for easy identification. This shall be ensured by E.I OEM, concerned Agency and Railway Engineer at site by all concerned.

8. Supply:

a. EI related item to be supplied as per existing EIs. The compatibility with the existing EI to be ensured. The material to be supplied as per RDSO specifications. It is to be ensured that all equipment's which are to be procured for the work should be of single OEM.

b. The supply of EI materials shall be as per Schedule B (Non SOR) schedule and related wiring materials as indicated which are essential for commissioning of the work.

c. Any other material/equipment required for installation & commissioning of the complete EI system to function efficiently.

d. The relays required for commissioning of the work will be supplied by the Railway.

9. Services:

9.1 Installation, testing and commissioning of system including transportation of all the equipment to site of installation from the store of SSE/Signal in KGP division or any other store in South Eastern Railway is to be carried out by tenderer.

9.2 All indoor works required for any alteration in the Interlocking Plan arising during the course of execution of this work shall be carried out by the Contractor expeditiously.

9.3 The complete interlocking system to work signalling gears from operator's panel in accordance with the table of control (RCC), approved circuit and logic in a failsafe manner.

10. Documentation:

All the drawings should be made ready before commissioning of the station and should be submitted fully incorporating the correction within 30 (thirty) days of commissioning of the station along with soft copy in Pen Drive. The tenderer shall undertake to supply six sets of complete documents of Electronic Interlocking System (EI) for each station.

10.1. This shall include

- a. Wiring Diagrams
- b. Logic/Application Program drawings
- c. Relay/Cable Termination particulars
- d. Input/output assignment details
- e. Relay layout and contact analysis chart
- f. Equipment disposition layout
- g. Details of power supply arrangement
- h. System architecture/configuration details
- i. Any other drawing as required by the Railway as per its practice.

10.2. The original tracings are to be prepared by the contractor on reproduction film and required prints are to be taken. Diagrams including tracings will be handed over to Railways. One set Drawings in soft copy on AutoCad format shall be given in a Pen Drive.

10.3. Only the Signalling Interlocking Plan (SIP) will be issued by the Railway. Front Plate Diagram/VDU layout, Route Control Chart, Station working rule, Station working rule diagram, Circuit diagrams and other standard diagrams as per South Eastern Railway practice as prevalent in the Railway where work is to be executed and other connected indoor work details shall be prepared by contractor and submitted to Railways for approval.

10.4. All the required documents for obtaining Technical System Application Approval (TSAA) to be submitted by the contractor without any extra cost.

11. Commissioning and final acceptance test:

11.1. Railway shall carry out all tests as per the RDSO Specifications and the Acceptance Test Schedule as furnished by the contractor after consultation with OEM. The test schedule may be modified by mutual discussions between the contractor and the Railway before finalization. Any EI component, modules, sub-assemblies or equipment failing during the commissioning test shall be replaced/repared free of cost by the tenderer.

11.2. All tests and measuring instruments and other arrangements required for the final Acceptance Test shall be provided by the contractor at his cost.

11.3. The completion certificate in accordance with General Conditions of Contract-2022, RDSO Specifications and Special Condition of Contract shall only be issued by the Railway Engineer after the installation is satisfactorily commissioned.

11.4. The FAT (two round)for commissioning of the work related to modification in the existing EI will be done as per RB letter no. 2017/Sig/3/85th SCC dated 04.12.2018.OEM representative shall be deployed during both round of FAT testing.

12. Until the final certificate shall have been issued, the Contractor or his duly authorized representatives, whose names shall have previously been communicated in writing to the Railway with permission from Railway shall be given right of entry at his own risk and expenses at all reasonable working hours upon all necessary parts of the works for the purpose of inspecting the working and the records of the system and taking notes there from and, if hedesires at his own risk and expense, making any test subject to the approval of the Railway which shall not be unreasonably withheld.

13. The successful bidder shall submit an undertaking from RDSO approved EI OEM, before the supply of material, to confirm compliance with extant RDSO guidelines and to meet the contract specific requirements.

14. After the award of the contract, MoU with RDSO approved source covering supply of equipment for EI, Installation, testing & commissioning of EI by the RDSO approved source including after sales support required during the warranty period & beyond the warranty period, before supply of equipment's is undertaken.

15. After initial commissioning of the system in a particular station, till completion of warranty period, if it is felt by Railways that certain signals routes & movement are to be added/deleted which couldn't be foreseen before commissioning to improve train operation without changing the basic yard configuration, the same should be carried out by the contractor & OEM at no extra cost to Railways.

16. Maintenance during Warranty Period:

16.1 The contractor shall be responsible for compulsory warranty cum maintenance of the equipments for a period of 1 (one) year free of cost for newly added cards and components. This period will commence immediately after commissioning of the station.

16.2 The contractor shall change the application logic free of cost, if any logic issue is observed within six month of commissioning.

17. Following information shall be provided by the contractor after award of work & before supply of materials:

- a) A brief outline/schematic plan of the proposed EI system with drawings, description of the equipment, materials used, cross reference, details of proposed Power Supply System, floor plan of relay room & earthing arrangement.
- b) Technical Specifications of the equipment and sub-system.
- c) Bill of materials used.
- d) A list of Test equipment and other special tools as required for data input, simulation testing, installation and maintenance etc. of the system and a detailed write-up about the procedure to be adopted for use of the same.