



**February
2026**

**भारत सरकार
Government of India
रेल मंत्रालय
Ministry of Railways**



**दरों की मानक अनुसूची
(सिग्नलिंग और दूरसंचार कार्यों के लिए)
Standard Schedule of Rates
(For Signalling & Telecommunication Works)**

**सिग्नल और दूरसंचार विभाग
पूर्व रेलवे
Signal and telecommunication department
Eastern Railway**

Eastern Railway

No. SG. 224/S&T/SOR/2026

Kolkata, Dated-26.02.2026

CSTE/Project, CSTE/Plg, CSTE/HQ,
CSTE/Con, CSE, CCE, CWM/SW/HWH,
Sr. DSTE/ HWH /SDAH/ ASN/ MLDT,
Dy CSTE/ W/ SDAH/ HWH, Dy CSTE/T/HQ,
Dy CSTE/W/II/SDAH, Dy CSTE/W/III/SDAH,
Dy CSTE/Proj/ASN, Dy CSTE/Proj/II/ASN,
Dy CSTE/ Con/ HWH/ SDAH, Dy CSTE/Con/II/HQ
Dy CSTE/W/D&D/HQ, Dy CSTE/Con/D&D/HQ
Dy CPM/S&T/GSU/SDAH,
Principal/STTC/LLH,
Eastern Railway.

Sub- Revised SOR of S&T/ER- Feb 2026

Ref- PCSTE/ER Sanction vide Note of even ref dtd-24.02.2026

Revised SOR of S&T department of Eastern Railway is now prepared and signed by Dy CSTE/HQ, Dy CSTE/Project/ASN with duly vetted by Dy FA&CAO/Con/II/HQ. PCSTE has approved and sanctioned vide ref above. The SOR shall be uploaded in ireps for tendering purpose. All executives are advised that hard copies of correction to SOR, as and when issued in future, shall be filed with the original SOR for ready reference similar to the practice followed for G&SR.

Any mistakes noticed may promptly be advised to PCSTE office for necessary correction.

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(B. Kushwaha)
Dy. CSTE/HQ/ER
for PCSTE/ER

Copy for kind information please-

- 1) SDGM/ER
- 2) PFA/ER
- 3) FA&CAO/Con/ER

Note

No. SG. 224/S&T/SOR/2026

Kolkata, Dated-24.02.2026

Sub:- Revised SOR of S&T/ER- Feb 2026

Revised SOR of S&T department of Eastern Railway is now prepared and signed by Dy CSTE/HQ, Dy CSTE/Project/ASN with duly vetted by Dy FA&CAO/Con/II/HQ. PCSTE is kindly requested for kind perusal, approval and sanction please.

BK
24.02.26

(B. Kushwaha)
Dy. CSTE/HQ/ER

PCSTE/ER-

*Approved &
Sanctioned*

25/02/26

SOR Committee Member,
Approval & Sanctioning Authority

Name	Designation	Role
<u>SOR Committee Members</u>		
Shri Brajesh Kushwaha	Dy.CSTE/HQ	Technical Member
Shri Shiv Prakash Yadav	Dy.CSTE/Project/ASN	Technical Member
Shri Srikant Jhawar	Dy.FA&CAO/CON-II/HQ	Finance Member
<u>Approving & Sanctioning Authority</u>		
Shri Bhuvnesh Kumar Agrawal	PCSTE	Approval & Sanctioning Authority

Preface

Eastern Railway is currently having S&T SOR of November 2023. After scrutiny, it is felt that revised SOR should be framed by removing outdated items and introducing state of the art items with reframing of many items along with its payment schedule and unit.

Accordingly, after forming a committee comprising of three JAG level member, Dy. CSTE/HQ, Dy. CSTE/Project/ASN with duly vetted by Dy. FA & CAO/Con/II/HQ, prepared revised SOR pertaining to S&T department comprising of Schedule of Rates for Signalling & Telecommunication Items with the valuable guidance of Sri B. K. Agrawal, PCSTE/ER.

During the preparation of SOR, price index fluctuation, current market trend, SOR of different zones have been referred.

The recommendation of SOR committee has been approved and sanctioned by PCSTE/ER for adoption of "SOR S&T 2026" for all S&T works in construction, project, Gatishakti and open line units in Eastern Railway.



भुवनेश कुमार अग्रवाल
 भारतीय रेलवे
 प्रधान मुक्त नि. एवं सू. म. इंजीनियर
Bhuvnesh Kumar Agrawal
 IRSE
 Principal Chief S&T Engineer



पूर्व रेलवे / Eastern Railway
 नेताजी सुभास रोड चौबाली प्लेस
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25 February, 2026

Message

In recent past there has been a great emphasis on Modernization of Railway network with huge capital expenditure with advanced Sigg Systems.

A large number of works are being undertaken for systems like Kavach, Electronic Interlocking, IBH, Automatic Signalling, Interlocking of L.C. Gates, CTC & communication works like IPMPLS, IPIS & PRS modernization.

Since large number of works are executed through contracts, it is therefore felt that there is a continuous need to upgrade and improve on the S&T SOR of Eastern Railway to cater for latest practices, guidelines and specifications.

Accordingly, a massive exercise has been undertaken for revision of the SOR duly taking best practices from other zones as well.

The explanatory notes for major items like EI & MSDAC have been redrafted including the payment conditions. Typical schemes have been included for MSDAC application and IPS configurations etc. which need to be studied by all executives and appropriately provided in the tender document as per the requirement.

I hope that this revision will bring economy, uniformity and standardization of S&T works over Eastern Railway.

I also complement the Members of SOR Committee and all those who have contributed. In know that a very hard work has been put in by them and place on record my appreciation to each & every member of the committee.

With Best Wishes,

**BHUVNESH
 KUMAR
 AGRAWAL**

(Bhuvnesh Kumar Agrawal)

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GUIDELINES FOR USING "REVISED SOR S&T Feb '2026"

1. The Revised Schedule of Rates (SOR) — February — 2026 mainly covers the Signalling and Telecom items which are frequently used by Divisions / Project / Construction /GSU units for Signal & Telecom works.
2. This Revised SOR may be used for estimation, preparation to tender schedules, quotations, work orders, uploading of tender schedule on IREPS.
3. The directives / guidelines of RDSO, Railway Board & HQ issued from time to time with regard to drawing & specification should be adhered to by divisions and field units without any exception.
4. **Although Revised SOR- Feb '2026 has been prepared with due care, any discrepancies w.r.t. specification, description, rates, units etc. may be brought to the notice of PCSTE/ER immediately.**
5. In many items, references of Drawing/Annexures etc. has been made, Executive of the field unit shall ensure the attachment of such Annexures/Drawing etc. in the tender document.
6. In some of the items of Revised SOR – Feb 2026, Detailed / Technical Specification / Drawing / Configuration of system need to be specified as per requirement of the tendered work. The same shall have to be incorporated in the tender document by concerned Tendering Authority.
7. Inspecting Authority has been prescribed for each item is only indicative. Please follow the latest guidelines of Railway Board, RDSO & PCSTE.
8. Although year of specification for various items of RDSO is given in the schedule, latest amendments/version should be ensured by divisions and field units. Further, in case there is any requirement of change in description/specification inspection of an item of SOR due to the change in specification by RDSO, the same should be informed promptly and brought to the notice of PCSTE/ER for change in specification/description/inspection authority of such item in the Revised SOR-Feb'2026.
9. In case of ambiguity in any of the items, the clarification can be asked in writing by any unit from PCSTE/ER.
10. Items other than those covered in Schedule of Rates (SOR), shall be considered as Non- Schedule Items. The Non-Schedule Items (NS), if required by divisions and field units, shall be operated in tender schedules/works quotations etc. as per extant guidelines/ procedures. However, realistic rate assessment has to be done separately for such items.

11. Divisions & field units should send the details of new items to be included in SOR based on their requirement. For inclusion of new items in SOR, divisions & field units should also send the LAR or latest available rates for such items based upon market survey so that new S&T items are included in next revision/updating of SOR.
12. While adoption of Revised SOR on ER, rate reasonableness should be ensured in an objective manner and keeping in view various relevant factors including LARs.

REVISED S&T SOR – 2026

ITEMS	Contents	PAGES
• CHAPTER – 1	Electronic interlocking, Design of circuits, Annexures & drawings, etc.	1 – 20
• CHAPTER – 2	DATA Logger, RTU , FEP, CMU and Networking Accessories etc.	21 – 27
• CHAPTER – 3	Indoor Relays , timers , Flasher, KLCR etc.	28 – 32
• CHAPTER – 4	Relay racks, CT racks, Tag Blocks, Terminal, Fuses, Indoor cables and Jumper wires etc.	33 – 39
• CHAPTER – 5	Power Supply Equipments, Batteries etc.	40 – 58
• CHAPTER – 6	Point machine and associated items.	59 – 63
• CHAPTER – 7	Track Circuit equipments.	64 – 70
• CHAPTER – 8	LED Main & Subsidiary signals, CLS units, Route Indicators & foundation etc.	71 – 81
• CHAPTER – 9	Level Crossing Gates & accessories etc.	82 – 87
• CHAPTER – 10	Panel room equipments, Fire alarm equipments, Furnitures etc.	88 – 107
• CHAPTER – 11	Apparatus case, outdoor installation, Fuses, ARA Terminal, Hylam Sheet, Phenolic Laminated sheets etc.	108 – 111
• CHAPTER – 12	Cable laying material, cable protection, cable execution, Jointing Kits items etc.	112 – 126

RREVISED S&T SOR – 2026

ITEMS	Contents	PAGES
• CHAPTER – 13	ELD, Earthing and Bonding etc.	127 – 132
• CHAPTER – 14	Telecom SOR items.	133 – 156
• CHAPTER – 15	Digital Axle Counters and Block Instruments, Multiplexers, MSDAC, HASSDAC, SSDAC, UFSBI, SSBPAC(D) DLBI/TLBI.	157 – 169
• CHAPTER – 16	Tools and Plants etc.	170 – 179
• CHAPTER – 17	Documentation, Signaling drawing, SIP, RCC, SWR, SWRD etc.	180 – 185
• CHAPTER – 18	Transportation.	186
• CHAPTER – 19	Miscellaneous & NI related items.	187 – 190
• CHAPTER – 20	Releasing of S&T Gears.	191 – 194
• Miscellaneous S&T drawings		131 Pages

CHAPTER – 1 :**Electronic interlocking, Design of circuits, Annexures & drawings, etc.**

SL.No.	Description	Unit	Rate
0101	Design, supply, Installation, wiring, Testing (FAT & SAT) and commissioning of Electronic Interlocking (EI) system, hot standby with Dual VDU, complete with architecture of EI i.e. Distributed or Centralized as per the requirement of Zonal Railway, as per RDSO specification No. RDSO/SPN/192/2019 Ver. 2 or latest for Yards upto 200 Routes, RDSO/SPN/203/2011 Ver.1 or RDSO specification No. RDSO/SPN/192/2019 Ver. 2 or latest for Big Yard having more than 200 Routes. The Details of EI, Details of Drawings, List of Functional Vital Bits, Materials to be supplied as per Annexures enclosed. Inspection- RDSO.	Per Functional Vital Bit	
0102	For Station with routes less than 50.	Per Functional Vital Bit	1,23,691.00
0103	For Station with routes more than 50 and less than 200 routes.	Per Functional Vital Bit	96,340.00
0104	For Station with routes more than 200 and less than 500 Routes.	Per Functional Vital Bit	79,412.00
	Note- For stations above 500 Routes, specific rates have to be worked out on case by case by executives.		
0105	Maintenance supervision of Electronics Interlocking equipment for one station per month from the date of expiry of mandatory maintenance period as per conditions of contract or as per the details given in special condition of contract agreement, The maintenance has to be done as per the latest guidelines of PCSTE, provision mentioned in Signal Engineering Manual. All records have to be maintained as prescribed from time to time. During maintenance at least one certified expert personnel from the OEM should be available at the station.	Per Month	
0106	For Station with routes less than 50.	Per Month	60,869.00
0107	For Station with routes more than 50 and less than 200 routes.	Per Month	92,713.00
0108	For Station with routes more than 200 routes to 500 Routes.	Per Month	1,60,401.00

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0109	Supply of VDU of 55" with 4K resolution suitable for 24x7 application for control terminal/maintenance terminal as per RDSO spec. No. RDSO/SPN/192/2019 Ver.2 or latest. Model to be approved before supply. Warranty: 3 Years from commissioning. Inspection: Consignee. Payment: 80% on supply and balance on Installation and Testing.	No.	1,09,410.00
0110	Supply of VDU of 65" with 4K resolution suitable for 24x7 application for control terminal/maintenance terminal as per RDSO spec. No. RDSO/SPN/192/2019 Ver.2 or latest Model to be approved before supply. Warranty: 3 Years from commissioning. Inspection: Consignee. Payment: 80% on supply and balance on Installation and Testing.	No.	1,34,093.00
0111	Supply of Industrial grade VDU of 85" with 4K resolution suitable for 24x7 application for control terminal/maintenance terminal as per RDSO spec. No. RDSO/SPN/203/2011 Ver.1 or latest Model to be approved before supply. Warranty: 3 Years from commissioning. Inspection: Consignee. Payment: 80% on supply and balance on Installation and Testing.	No.	3,30,793.00
0112	Supply of fan-less embedded industrial grade computers (Similar to Moxa V2406A or better) with all accessories such as key board, mouse, antivirus etc. of industrial grade as per approved Specification as recommended by RDSO (TAN No. STS/TAN/3007 Version 1.0 or latest) for control terminal/maintenance terminal as per RDSO spec. No. RDSO/SPN/192/2019 Ver. 2 or latest. Inspection: RDSO. Note: This item is already included in SOR item no- 0101, however this item to be included for any extra/spare requirement.	No.	1,81,181.00
0113	Design, supply, Installation, wiring, Testing (FAT & SAT) and commissioning of Electronic Interlocking (EI) system, complete with architecture of EI i.e. for Automatic Block Signaling for Double line. Inspection- RDSO.		
i)	Per Electronic Interlocking.	Per EI.	36,08,972.00
ii)	Per Object Controller	Per OC.	19,58,363.00

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0114	Design, supply, Installation, wiring, Testing (FAT & SAT) and commissioning of Electronic Interlocking (EI) system, complete with architecture of EI i.e. for Intermediate Block Hut. Inspection- RDSO.		
i)	Per Electronic Interlocking (Alterations to Existing EI)	Per EI.	28,00,000.00
ii)	Per Object Controller	Per OC.	18,62,500.00

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Annexure for EI for Item no 0101

1	Electronic Interlocking mainly consists of Microprocessor Equipment, Interface Equipment, industrial PCs (For 2 no Operator and 1 no Maintainer VDUs) along with necessary inverters/converters as per RDSO TAN, communication equipment (Network switches) for LAN, EI vendor specific Interfacing Relays , In-built event Logger, In-built Power Supply equipment, Racks (Only Relay Rack/EI Rack), Indoor cables, Wires, Fuses , housing for EI equipment and Relay Racks, Fixtures, Mounting, arrangements along with all accessories required to make complete EI system functional. Supply & provision of protective devices like surge and lightning protection devices compatible to RE standards as recommended by OEM / RDSO. <u>VDUs supply is not covered under the scope of this item.</u> Inspection: RDSO
2	This provision of hot-standby arrangement must have the supply, installation and commissioning of associated cards for the above arrangement such as communication card, synchronization card and others cards as required with supply & installation of supporting software and drives etc. also Optical Fiber link with loop back (Protection ring) between center to goomties.
3	Embedded industrial grade fan less PCs (for operating and maintainer VDUs) should be of rugged and reliable type like MOXA series V 2406, Kontron MPCX28R, MEN BC50M or latest with compact flash drives in non-AC and in normal environment to be used. Minimum requirement of Embedded PC for EI shall be as per RDSO Specification. RDSO/SPN/203/2011 Ver.1 or RDSO Specification No. RDSO/SPN/192/2019 Ver. 2 or latest as applicable.
4	Tentative/Approved SIP is enclosed for station. Design of indoor EI system should be compatible as per outdoor interlocking requirement based on Signal Interlocking Plan & Selection Table of station/yard and will be done by OEM after following all the guidelines/directives issued by RDSO from time to time as per RE requirements, hot standby with Dual VDU.
5	The optical fiber connectivity with fiber management and diagnostic analysis system shall be provided to connect EI with SM room, Maintainer Rooms(s) PC terminal. Only armoured OFC patch cord of appropriate length should be used.
6	All interface relays for EI shall be supplied by Railways.
7	Supply of essential spares to the extent of 10% of the quantities installed (subject to minimum 1 number) to be given (Input, output, processor, power supply, communication switches, DC-DC convertor, all type of connectors, vendor specific relays (list to be given by OEM).
8	List of function-wise approved vital bits is attached as per PCSTE/ER policy no- No.SG.42/0/Vol.-VII, dated 01.09.2025 . Any additional functional vital bit required to be considered for payment shall be approved from CSTE/Plg. Note- Any new vital list subsequently approved by CSTE/PLG shall automatically become part of this approved list and no further approval by other executives is required to be taken.

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9	<p>Break-up of cards (Quantity) are not to be submitted at the time of tender submission as per latest guidelines of Railway Board.</p> <p>Note-</p> <p>1) Before requesting RDSO inspection- Breakup of (i) each type of main equipment module/cards (ii) each type of vendor specific relays. (iii) DC-DC converters of all voltages (iv) switches, connectors, fuses, couplers. (v) consumables for wiring material & communication equipment required should be quantified. As per the Format provided in Annexure for common items.</p> <p>2) In the break up, module wise rates, inspection authority and quantity should be given in a separate sheet.</p>
10	<p>The EI Hardware is to be supplied only after approval of BIT CHART and readiness of Relay Room. RDSO Inspection Call letter shall be issued by executive only after approval of BIT CHART and ensuring readiness of the Relay Room by the time of expected material supply.</p>
11	<p>Payment Terms-</p> <p>i) 60% payment shall be paid after supply of complete material with spare materials (list provided by OEM in Para no-9).</p> <p>ii) 10% Payment shall be paid after Installation and energization at site.</p> <p>iii) 10% Payment shall be paid on completion of FAT. (This payment can be made even without starting any physical activity)</p> <p>iv) 10% payment shall be made on completion of (ii), (iii) & SAT.</p> <p>v) Balance 10% payment shall be paid after SAT and after commissioning of the Station and other requisite activities. (Training, completion/as made drawings).</p>
12	<p>Training of Railway Personnel (at least 60 Mandays) at site by OEM for Installation, Commissioning, Testing, Troubleshooting including documentation. (Hard copies of training material/ course modules to be given to each participant). This shall be completed before commissioning.</p>
13	<p>Supply of documents / manuals as per specifications.</p>
14	<p>Credentials (Name, designation, address, mobile no, e mail id, Years of experience in signaling, names of stations/zonal railway for which similar documents have been designed) by the design engineers engaged by the contractor/OEM for vital documents like RCC, bit charts, interface circuits, logic circuits, route selection chart, point control table etc. shall be submitted along with the drawings/documents being submitted for approval. For stations above 100 Routes, the designers must have approved and valid license from IRSE or IRSTELO.</p>
15	<p>EI should have kavach ready ports and bits for kavach also to be allotted as per Railway Board letter no RB Letter No. 2020/Sig/18/EI/Gen. New Delhi, Dated: 30.04.2025</p>
16	<p>Firm should ensure an EI compatible Protocol converter for datalogger.</p>

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17	Required DC-DC converter/ Inverters of approved make shall be provided for power supply to operating and maintainer VDUS and PCs as per RDSO TAN No-STS/E/TAN/3012 Version 4.0 or latest/policy of ER.
18	Design, preparation & supply of drawings in computer print copies and original tracing in AUTO CAD FORMAT for Electronic Interlocking after completion of the work, the completion drawings incorporating completion details are to be supplied as per annexure within 30 days of commissioning.
19	The OEM shall provide EI to MSDAC direct interface wherever approved by RDSO.
20	<p>Installation, wiring, testing (FAT & SAT) and commissioning of EI System with 'Hot Standby' architecture- It includes erection and grouting of EI Relay Racks, fixing and wiring of all the interfacing relays (Vital & Non-Vital), installation and wiring of Microprocessor equipments, interface equipments, power supply equipments, Cable runway ladder arrangement in tiers as per guideline of RDSO for connecting cables to relay rack with indoor card/modules in EI system along with supply of runner, cable bunching, dressing etc. with protection of the laid connecting indoor cables and all other associated accessories to make complete EI system to be functional.</p> <p>Note:(i) Contractor has to arrange a simulator/simulation testing panel for testing and commissioning by Selection Table and Square Sheet for each Signalling function. (ii) Installation, wiring, testing and commissioning of EI system will be done by OEM after following all the guidelines/directives issued by RDSO from time to time.</p>

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Annexure for EI common items to be submitted after award of the contract

SN	Item	Qty.	Rate
1	Design of EI.		
2	Relay Rack.		
3	Ladder arrangement, cable trays cable assembly accessories for interconnection of Racks, Datalogger, IPS & VDU.		
4	Indoor cables, wiring material & connectors.		
5	Fuse & Fuse bases.		
6	Fixtures & Mounting arrangement.		
7	Housing for EI equipment.		
8	Communication equipment.		
9	In-built Power supply equipment (Required DC-DC converters)		
	a) 110V/24V.		
	b) 110V/5V etc.		
10	In-built Event Logger		
11	Hardware specific materials - Different type of cards of OEM specific		
	a) Input Card.		
	b) Output Card.		
	c) Processors.		
		
12	Vendor specific Relays		
	a) VCOR relay		
	b) QN1, 50V (8F,8B)		
	c)		
		
13	Protocol Converter for Datalogger.		
14	Protocol Converter for TCAS/Kavach.		
15	Surge & Lightening protecting devices		
16	FAT		
17	SAT		
18	Completion drawings		
19	Training of Railway staff Mandays ()		

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List Of Drawings		
SN	Description	Unit
1	Design of Circuit Diagrams consisting as mentioned below & submission of three copies for approval.	Per Station
2	Wiring diagram along with all Logic details & interface circuit.	
3	Relay Disposition chart.	
4	Contact analysis and fuse particulars.	
5	Panel Termination Chart.	
6	Bit chart.	
7	Indoor cable plan.	
8	Floor plan for Relay room, Battery room, Power Eq. room, Data logger room, SM Room, Maintainer Room etc.	
9	Power supply diagram along with power supply/Load calculation.	
10	Earthing diagram	

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Vital Functional Bit List			
SL.No.	DESCRIPTION OF SIGNALING GEARS	EQUIVALENT FUNCTIONS	RELAYS
1	Signal Two aspect	3	HR, RECR, HECR
2	Signal Three aspect	5	HR, DR, RECR, HECR, DECR
3	Signal Four Aspect	7	HR, HHR, DR, RECR, HECR, HHECR, DECR
4	Junction route indicator - One way	2	UHR, UECR
5	Junction route indicator - Two way	3	UHR1, UHR2, UECR
6	Junction route indicator - Three way	4	UHR1, UHR2, UHR3, UECR
7	Junction route indicator - Four way	5	UHR1, UHR2, UHR3, UHR4, UECR
8	Junction route indicator - Five way	6	UHR1, UHR2, UHR3, UHR4, UHR5, UECR
9	Junction route indicator - Six way	7	UHR1, UHR2, UHR3, UHR4, UHR5, UHR6, UECR
10	Calling on Signal	2	COHR, COECR
11	Shunt Signal (Dependent)	2	SHHR, SHECR (OFF)
12	Shunt Signal (Independent)	3	SHHR, SHECR (ON), SHECR (OFF)
13	DC Track Circuit	1	TPR
14	Cross over Point (Signal ended/Double ended)	7	NWZR, RWZR, WCZR, NDKR, RDKR, NDKR1, RDKR1
15	L.C. Gate - Traffic	2	LXYR, LXCKPR
16	G.F. Operated Point	3	YR, KNLR, NKR
17	UFSBI (Single Line)	5	HSGNCR, ASGNCR, ASLR, HSB, ASCR
18	UFSBI (Double Line)	5	HSGNCR, ASGNCR, ASLR, HSB, ASCR
19	TLBI	4	ASCR, PBR (BELLACK), SNR, TAR
20	DLBI	7	LCR(DN), LCR(UP), TOLR(DN), TOLR(UP), XR, DCR, TOLR(R)
21	SSDAC (One Set)	1	VPR

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22	HASSDAC	2	VPR 1, VPR 2
23	MSDAC (One track section)	1	AXPR
24	Crank Handle (Each)	2	CHZYR, KNLR
25	Extreme Emergency Crank Handle	2	ECH_PR, ECH_RBPR
26	Slot Outgoing	3	YR (O/P), YSR, NR (I/P)
SL.No.	DESCRIPTION OF SIGNALING GEARS	EQUIVALENT FUNCTIONS	RELAYS
27	Slot Incoming	3	YSR, NR (O/P), YR (I/P)
28	'A' Marker	2	AHR, AECR
29	'AG' Marker	2	AGHR, AGECR
30	KEY	3	SM KEY1, SM KEY2, EM KEY
31	IPS POWER SUPPLY	2	I/P-(MAIN OK, MAIN FAIL)
32	RR CLOSE	1	EACH RELAY ROOM/RELAY HUT
33	IBS	2	UP TRAR, DN TRAR
34	Directional Panel	12	UP_TGTPR, UP_CTPR, UP_SGMR, UP_PB1R, DN_BR, DN_LCPR (O/P), DN_TGTPR, DN_CTPR, DN_SGMR, DN_PB1R, UP_BR, UP_LCPR (I/P)
35	ABS (D/L) - 4 Aspect (Interface with adjacent station)	6	UP_HPR, UP_HHPR, UP_DPR (O/P), DN_HPR, DN_HHPR, DN_DPR (I/P)

NOTE: These are minimum vital input/output functions to achieve circuits in EI. In case a typical circuit diagram of a zonal railway has more vital inputs/outputs, it can be adopted with the approval of PCSTE after verification from HQ design office. **Non-vital I/O and read back I/O shall not be counted.**

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Annexure for EI-Alteration

Sub - Guidelines for Payment of EI- Alteration work in Eastern Railway

The following procedure to be followed for processing variations to EI alterations under different circumstances such as -

1

A. Alterations due to increase in scope of work (Routes) in initial design after award of the contract- It is seen that Approved/Tentative SIP is attached to the tender documents which defines the scope of work estimated in the tender. However when approved SIP is issued before commencement of the work there is an increase in number of routes or increase in functional Bits.

In such cases variation should be processed for increased functional Bits since cost of each Functional Bit is inclusive of all activities such as supply of hardware, installation, Design, Testing and completion Documents etc.

B. Alterations after completion of design and testing (before commissioning) with or without hardware- It is seen that a comprehensive annexure is obtained from the contractor after award of the tender wherein the item wise details of hardware with quantity, Cost of Design, Relay Racks, Wiring Materials, Installation, Testing and completion documents etc. This is the total cost of EI work for the tentative SIP/Approved SIP attached with the tender document.

In such cases, The cost of EI design & Testing per route to be calculated as per break up rates given by the firm as per initial scope of work. Now the additional cost of design of total no of routes (New, Altered, deleted) to be calculated by multiplying with original design cost per route. This shall be processed as NS Item. Additional hardware required shall be processed as NS Item whose cost to be calculated as per break up of rates of cards given by the firm as per the annexure submitted after award of the contract.

C. Alterations after commissioning with or without requirement of additional hardware-

Similar to B, The cost of EI design & Testing per route to be calculated as per break up rates given by the firm as per initial scope of work. Now the additional cost of design of total no of routes (New, Altered, deleted) to be calculated by multiplying with original design cost per route. This shall be processed as NS Item. Additional hardware required shall be processed as NS Item whose cost to be calculated as per break up of rates of cards given by the firm as per the annexure submitted after award of the contract.

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	<p>However,</p> <p>1) Minimum Cost of Alteration shall be as below.</p> <p>i) Alterations upto 10 Routes – Rs.17,44,012.00 (As per existing SOR/ER).</p> <p>ii) Alterations from 11 to 20 Routes- Rs.26,99,619.00 (As per existing SOR/ER).</p> <p>2) Also, the Contractor shall submit an undertaking from the OEM after award of the contract, to agree for execution of any alteration that may be done in future within the codal life of the EI installation at the same rates with necessary escalation as applicable as per industry standards and indexes.</p>
2	Tentative/Approved SIP is enclosed for station. Alteration in Design of indoor EI system should be compatible as per outdoor interlocking requirement based on Signal Interlocking Plan & Selection Table of station/yard and will be done by OEM after following all the guidelines/directives issued by RDSO from time to time as per RE requirements, hot standby with Dual VDU.
3	All interface relays for EI shall be supplied by Railways.
4	List of function-wise approved vital bits is attached as per PCSTE/ER policy no-No.SG.42/0/Vol.-VII, dated 01.09.2025. Any additional functional vital bit required to be considered for payment shall be approved from CSTE/Plg. Note- Any new vital list subsequently approved by CSTE/PLG shall automatically become part of this approved list and no further approval by other executives is required to be taken.
5	The additional required EI Hardware is to be supplied only after approval of BIT CHART. The required no cards/modules/DC-DC converters etc. should be procured from the variation of the schedule. The rates should be taken from the breakup of cards as submitted by firms after award of the original contract.
6	<p>Payment Terms-</p> <p>i) 80% Payment shall be paid on completion of Design and FAT. (This payment can be made even without starting any physical activity)</p> <p>ii) Balance 20% payment shall be paid after SAT and after commissioning of the Station and other requisite activities (Training, completion/as made drawings).</p>
7	Training of Railway Personnel (at least 60 Mandays) at site by OEM for installation, Commissioning, Testing, Troubleshooting including documentation. (Hard copies of training material/ course modules to be given to each participant). This shall be completed before commissioning.
8	Supply of documents / manuals as per specifications.

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9	Credentials (Name, designation, address, mobile no, e mail id, Years of experience in signaling, names of stations/zonal railway for which similar documents have been designed) by the design engineers engaged by the contractor/OEM for vital documents like RCC, bit charts, interface circuits, logic circuits, route selection chart, point control table etc. shall be submitted along with the drawings/documents being submitted for approval. For stations above 100 Routes, the designers must have approved and valid license from IRSE or IRSTELO.
10	EI should have kavach ready ports and bits for kavach also to be allotted as per Railway Board letter no RB letter no- No. 2020/Sig/18/EI/Gen. New Delhi, Dated: 30.04.2025.
11	Design, preparation & supply of drawings in computer print copies and original tracing in AUTO CAD format for Electronic Interlocking after completion of the work, the completion drawings incorporating completion details are to be supplied as per annexure within 30 days of commissioning.
12	The OEM shall provide EI to MSDAC direct interface wherever approved by RDSO.
13	(i) Contractor has to arrange a simulator/simulation testing panel for testing and commissioning by Selection Table and Square Sheet for each Signalling function. (ii) Installation, wiring, testing and commissioning of EI system will be done by OEM after following all the guidelines/directives issued by RDSO from time to time.

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Annexure for Electronic Interlocking for Auto Section (Item no-0113)

1	Electronic Interlocking mainly consists of Microprocessor Equipment, Interface Equipment, industrial PCs (For 2 no Operator and 1 no Maintainer VDUs) along with necessary inverters/converters as per RDSO TAN, communication equipment (Network switches) for LAN, EI vendor specific Interfacing Relays , In-built event Logger, In-built Power Supply equipment, Racks (Only Relay Rack/EI Rack), Indoor cables, Wires, Fuses , housing for EI equipment and Relay Racks, Fixtures, Mounting ,arrangements along with all accessories required to make complete EI system functional. Supply & provision of protective devices like surge and lightning protection devices compatible to RE standards as recommended by OEM / RDSO. <u>VDUs supply is not covered under the scope of this item.</u> Inspection: RDSO.
2	This provision of hot-standby arrangement must have the supply, installation and commissioning of associated cards for the above arrangement such as communication card, synchronization card and others cards as required with supply & installation of supporting software and drives etc. also Optical Fiber link with loop back (Protection ring) between center to goomties.
3	Embedded industrial grade fan less PCs (for operating and maintainer VDUs) should be of rugged and reliable type like MOXA series V 2406, Kontron MPCX28R, MEN BC50M or latest with compact flash drives in non-AC and in normal environment to be used. Minimum requirement of Embedded PC for EI shall be as per RDSO Specification. RDSO/SPN/203/2011 Ver.1 or RDSO Specification No. RDSO/SPN/192/2019 Ver. 2 or latest as applicable.
4	Tentative/Approved SIP is enclosed for station. Design of indoor EI system should be compatible as per outdoor interlocking requirement based on Signal Interlocking Plan & Selection Table of station/yard and will be done by OEM after following all the guidelines/directives issued by RDSO from time to time as per RE requirements, hot standby with Dual VDU.
5	The optical fiber connectivity with fiber management and diagnostic analysis system shall be provided to connect EI with SM room, Maintainer Rooms(s) PC terminal. Only armoured OFC patch cord of appropriate length should be used.
6	All interface relays for EI shall be supplied by Railways.
7	Supply of essential spares to the extent of 10% of the quantities installed (subject to minimum 1 number) to be given (Input, output, processor, power supply, communication switches, DC-DC convertor, all type of connectors ,vendor specific relays (list to be given by OEM).

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8	A typical Auto EI scheme with Dual MSDAC is attached.
9	<p>Break-up of cards (Quantity) are not to be submitted at the time of tender submission as per latest guidelines of Railway Board.</p> <p>Note-</p> <p>1) Before requesting RDSO inspection- Breakup of (i) each type of main equipment module/cards (ii) each type of vendor specific relays(iii) DC-DC converters of all voltages (iv) switches, connectors, fuses, couplers. (v) consumables for wiring material & communication equipment required should be quantified. As per the Format provided in Annexure for common items.</p> <p>2) In the break up, module wise rates, inspection authority and quantity should be given in a separate sheet.</p>
10	<p>The EI Hardware is to be supplied only after approval of BIT CHART and readiness of Relay Room. RDSO Inspection Call letter shall be issued by executive only after approval of BIT CHART and ensuring readiness of the Relay Room by the time of expected material supply.</p>
11	<p>Payment Terms-</p> <p>i) 60% payment shall be paid after supply of complete material with spare materials (list provided by OEM in Para no-9).</p> <p>ii) 10% Payment shall be paid after Installation and energization at site.</p> <p>iii) 10% Payment shall be paid on completion of FAT. (This payment can be made even without starting any physical activity)</p> <p>iv) 10% payment shall be made on completion of (ii), (iii) & SAT.</p> <p>v) Balance 10% payment shall be paid after SAT and after commissioning of the Station and other requisite activities (Training, completion/as made drawings).</p>
12	Training of Railway Personnel (at least 60 Mandays) at site by OEM for installation, Commissioning, Testing, Troubleshooting including documentation. (Hard copies of training material/ course modules to be given to each participant).This shall be completed before commissioning.
13	Supply of documents / manuals as per specifications.
14	<p>Credentials (Name, designation, address, mobile no, e mail id, Years of experience in signaling, names of stations/zonal railway for which similar documents have been designed) by the design engineers engaged by the contractor/OEM for vital documents like RCC, bit charts, interface circuits, logic circuits, route selection chart, point control table etc. shall be submitted along with the drawings/documents being submitted for approval. For stations above 100 Routes, the designers must have approved and valid license from IRSE or IRSTELO.</p>

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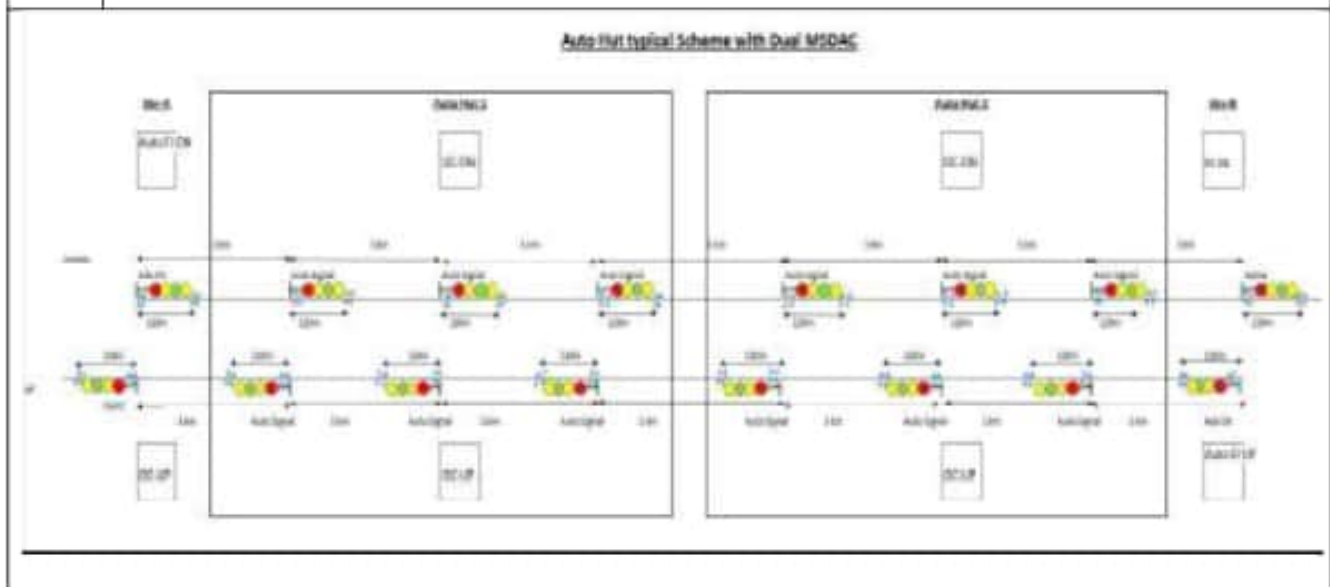
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15	El should have kavach ready ports and bits for kavach also to be allotted as per Railway Board letter no RB letter no- No. 2020/Sig/18/El/Gen. New Delhi, Dated: 30.04.2025.
16	The firm should ensure an EI compatible Protocol converter for datalogger.
17	Required DC-DC converter/Inverters of approved make shall be provided for power supply to operating and maintainer VDUS and PCs as per RDSO TAN No.- STS/E/TAN/3012 Version.4.0 or latest/policy of ER.
18	Design, preparation & supply of drawings in computer print copies and original tracing in AUTO CAD FORMAT for Electronic Interlocking after completion of the work, the completion drawings incorporating completion details are to be supplied as per annexure within 30 days of commissioning.
19	The OEM shall provide EI to MSDAC direct interface wherever approved by RDSO.
20	Installation, wiring, testing (FAT & SAT) and commissioning of EI System with 'Hot Standby' architecture- It includes erection and grouting of EI Relay Racks, fixing and wiring of all the interfacing relays (Vital & Non-Vital), installation and wiring of Microprocessor equipments, interface equipments, power supply equipments, Cable runway ladder arrangement in tiers as per guideline of RDSO for connecting cables to relay rack with indoor card/modules in EI system along with supply of runner, cable bunching, dressing etc. with protection of the laid connecting indoor cables and all other associated accessories to make complete EI system to be functional. Note:(i) Contractor has to arrange a simulator/simulation testing panel for testing and commissioning by Selection Table and Square Sheet for each Signalling function. (ii) Installation, wiring, testing and commissioning of EI system will be done by OEM after following all the guidelines/directives issued by RDSO from time to time.



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Annexure for Electronic Interlocking for IBS (Item No-0114)

1	Electronic Interlocking mainly consists of Microprocessor Equipment, Interface Equipment, industrial PCs (For 2 no Operator and 1 no Maintainer VDUs) along with necessary inverters/converters as per RDSO TAN, communication equipment (Network switches) for LAN, EI vendor specific Interfacing Relays, In-built event Logger, In-built Power Supply equipment, Racks (Only Relay Rack/EI Rack), Indoor cables, Wires, Fuses, housing for EI equipment and Relay Racks, Fixtures, Mounting, arrangements along with all accessories required to make complete EI system functional. Supply & provision of protective devices like surge and lightning protection devices compatible to RE standards as recommended by OEM / RDSO. <u>VDUs supply is not covered under the scope of this item.</u> Inspection: RDSO
2	This provision of hot-standby arrangement must have the supply, installation and commissioning of associated cards for the above arrangement such as communication card, synchronization card and others cards as required with supply & installation of supporting software and drives etc. also Optical Fiber link with loop back (Protection ring) between center to goomties.
3	Embedded industrial grade fan less PCs (for operating and maintainer VDUs) should be of rugged and reliable type like MOXA series V 2406, Kontron MPCX28R, MEN BC50M or latest with compact flash drives in non-AC and in normal environment to be used. Minimum requirement of Embedded PC for EI shall be as per RDSO Specification. No. RDSO/SPN/203/2011 Ver.1 or RDSO specification No. RDSO/SPN/192/2019 Ver. 2 or latest as applicable.
4	Tentative/Approved SIP is enclosed for station. Design of indoor EI system should be compatible as per outdoor interlocking requirement based on Signal Interlocking Plan & Selection Table of station/yard and will be done by OEM after following all the guidelines/directives issued by RDSO from time to time as per RE requirements, hot standby with Dual VDU.
5	The optical fiber connectivity with fiber management and diagnostic analysis system shall be provided to connect EI with SM room, Maintainer Rooms(s) PC terminal. Only armoured OFC patch cord of appropriate length should be used.
6	All interface relays for EI shall be supplied by Railways.
7	Supply of essential spares to the extent of 10% of the quantities installed (subject to minimum 1 number) to be given (Input, output, processor, power supply, communication switches, DC-DC convertor, all type of connectors, vendor specific relays (list to be given by OEM).
8	Typical IB-EI scheme for Single Distant and Double Distant with Dual MSDAC is attached.

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9	<p>Break-up of cards (Quantity) are not to be submitted at the time of tender submission as per latest guidelines of Railway Board.</p> <p>1) Before requesting RDSO inspection- Breakup of (i) each type of main equipment module/cards (ii) each type of vendor specific relays(iii) DC-DC converters of all voltages (iv) switches, connectors, fuses, couplers. (v) consumables for wiring material & communication equipment required should be quantified. As per the Format provided in Annexure for common items.</p> <p>2) In the break up, module wise rates, inspection authority and quantity should be given in a separate sheet.</p>
10	<p>The EI Hardware is to be supplied only after approval of BIT CHART and readiness of Relay Room. RDSO Inspection Call letter shall be issued by executive only after approval of BIT CHART and ensuring readiness of the Relay Room by the time of expected material supply.</p>
11	<p>Payment Terms-</p> <p>i) 60% payment shall be paid after supply of complete material with spare materials (list provided by OEM in Para no-9).</p> <p>ii) 10% Payment shall be paid after Installation and energization at site.</p> <p>iii) 10% Payment shall be paid on completion of FAT. (This payment can be made even without starting any physical activity)</p> <p>iv) 10% payment shall be made on completion of (ii), (iii) & SAT.</p> <p>v) Balance 10% payment shall be paid after SAT and after commissioning of the Station and other requisite activities (Training, completion/as made drawings).</p>
12	<p>Training of Railway Personnel (at least 60 Mandays) at site by OEM for installation, Commissioning, Testing, Troubleshooting including documentation. (Hard copies of training material/ course modules to be given to each participant).This shall be completed before commissioning.</p>
13	<p>Supply of documents / manuals as per specifications.</p>
14	<p>Credentials (Name, designation, address, mobile no, e-mail id, Years of experience in signaling, names of stations/zonal railway for which similar documents have been designed) by the design engineers engaged by the contractor/OEM for vital documents like RCC, bit charts, interface circuits, logic circuits, route selection chart, point control table etc. shall be submitted along with the drawings/documents being submitted for approval. For stations above 100 Routes, the designers must have approved and valid license from IRSE or IRSTELO.</p>
15	<p>EI should have kavach ready ports and bits for kavach also to be allotted as per Railway Board letter no RB Letter No. 2020/Sig/18/EI/Gen. New Delhi, Dated: 30.04.2025.</p>
16	<p>The firm should ensure an EI compatible Protocol converter for datalogger.</p>

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17	Required DC-DC converter/ Inverters of approved make shall be provided for power supply to operating and maintainer VDUS and PCs as per RDSO TAN No.-STS/E/TAN/3012 Version 4.0 or latest/policy of ER.
18	Design, preparation & supply of drawings in computer print copies and original tracing in AUTO CAD FORMAT for Electronic Interlocking after completion of the work, the completion drawings incorporating completion details are to be supplied as per annexure within 30 days of commissioning.
19	The OEM shall provide EI to MSDAC direct interface wherever approved by RDSO.
20	<p>Installation, wiring, testing (FAT & SAT) and commissioning of EI System with 'Hot Standby' architecture- It includes erection and grouting of EI Relay Racks, fixing and wiring of all the interfacing relays (Vital & Non-Vital), installation and wiring of Microprocessor equipments, interface equipments, power supply equipments, Cable runway ladder arrangement in tiers as per guideline of RDSO for connecting cables to relay rack with indoor card/modules in EI system along with supply of runner, cable bunching, dressing etc. with protection of the laid connecting indoor cables and all other associated accessories to make complete EI system to be functional.</p> <p>Note: (i) Contractor has to arrange a simulator/simulation testing panel for testing and commissioning by Selection Table and Square Sheet for each Signalling function. (ii) Installation, wiring, testing and commissioning of EI system will be done by OEM after following all the guidelines/directives issued by RDSO from time to time.</p>

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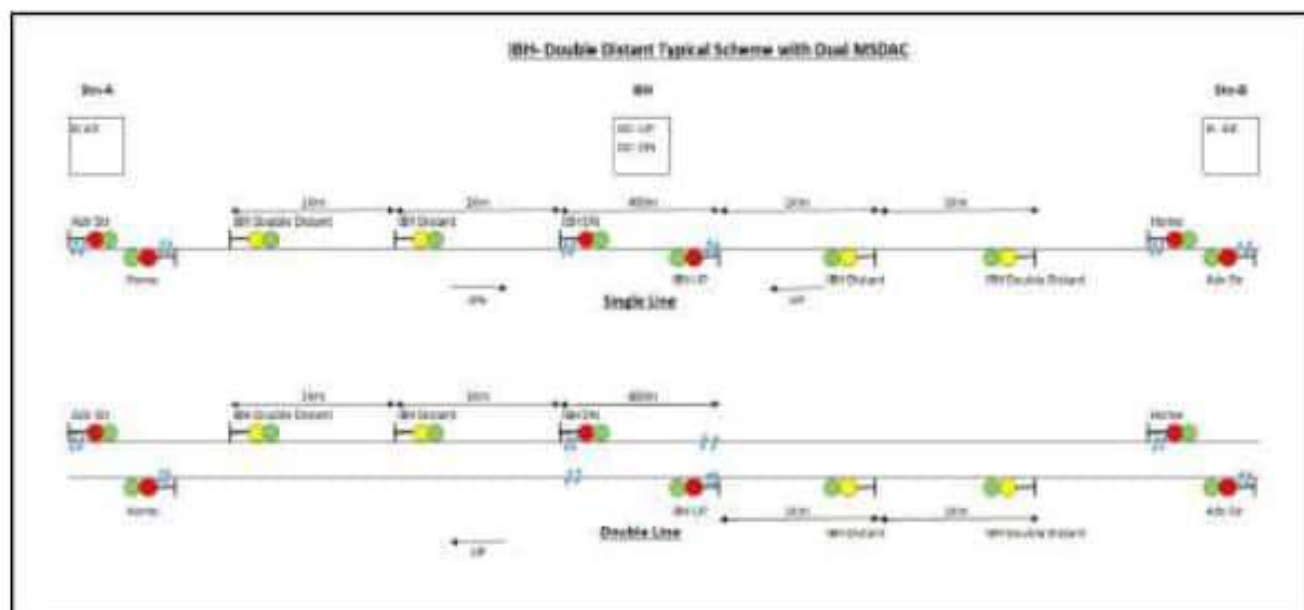
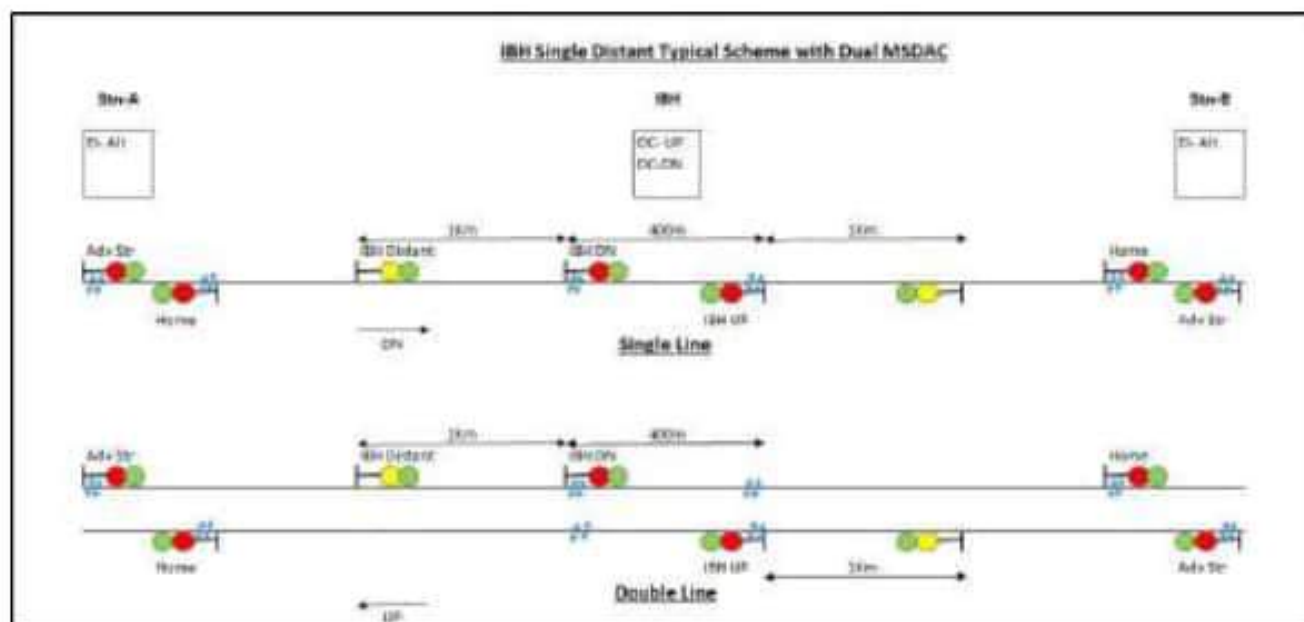
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CHAPTER – 2 :
DATA Logger, RTU, FEP, CMU and Networking Accessories etc.

SL.No.	Description	Unit	Rate
0201	Supply of Data Logger System with 4096 digital and 64 analog inputs as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest. Inspection: RDSO. Payment: 80% on supply and balance on installation and Testing/SAT.	No.	16,60,422.00
0202	Installation, wiring, testing & commissioning of Micro Processor based Data Logger System with 4096 digital and 64 analog inputs as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest. It covers complete indoor relay room wiring from data logger to relay rack tag blocks, drawing/extension of power supply upto Data Logger. It includes relay room door lock checking arrangement, RDSO/CLS Panel output power supply monitoring arrangement & DG sets, ELD , IPS,UFSBI, Block Instruments, SPDs, Auto Changeover Equipments/Modems, TFBC Alarms, AFDAS Alarms, RDPMS Alarms, 48 Volts Telecom supply , and interlinking and networking of Data logger. Note: Total numbers of relays and other signalling functions/gears required to be wired as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines of Railway Board/RDSO/Zonal Railway. Networking of data logger includes extraction of data reports from the Control room. Exceptional reports are to be generated by a computer connected to a datalogger at the station and at a central location in the Control Room. Datalogger software should be able to generate exceptional reports for maintenance, safety and operations as per latest guidelines of Railway Board/RDSO/Zonal Railway. Datalogger to be installed at Site by OEM For networking, required communication channel (Quad/ OFC cable) will be arranged/provided by Rly in the Relay Room or in OFC/AUTO/EI Huts. The final commissioning will be done after filling up the Pre-Commissioning checklist (circulated by RDSO) with the OEM representative. Datalogger to be validated and commissioned before simulation test (SAT) and put in network , validation statement should be jointly signed by railway engineer (open line), railway engineer	No.	94,360.00

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	(construction) & OEM'S engineer before simulation test with name, designation and date. Payment for this item will be released only after submission of duly signed pre-commissioning checklist of data logger in standard RDSO format, joint signature of validation statement. OEM'S engineer will also impart training to Rly. staff at site for proper functioning /working and applications of data logger.		
0203	Supply of Data Logger System with 1024 digital and 32 analog inputs as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest. Inspection: RDSO. Payment: 80% on supply and balance on installation and Testing/SAT.	No.	6,25,552.00
0204	Installation, wiring, testing & commissioning of Micro Processor based Data Logger System with 1024 digital and 32 analog inputs as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest It covers complete indoor relay room wiring from data logger to relay rack tag blocks, drawing/extension of power supply upto Data Logger. It includes relay room door lock checking arrangement, RDSO/CLS Panel output power supply monitoring arrangement & DG sets, ELD , IPS,UFSBI, Block Instruments, SPDs, Auto Changeover Equipments/Modems, TFBC Alarms, AFDAS Alarms, RDPMS Alarms, 48 Volts Telecom supply , and interlinking and networking of Data logger. Note: Total numbers of relays and other signalling functions/gears required to be wired as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines of Railway Board/RDSO/Zonal Railway. Networking of data logger includes extraction of data reports from the Control room. Exceptional reports are to be generated by a computer connected to a datalogger at the station and at a central location in the Control Room. Datalogger software should be able to generate exceptional reports for maintenance, safety and operations as per latest guidelines of Railway Board/RDSO/Zonal Railway. Datalogger to be installed at Site by OEM For networking, required communication channel (Quad/ OFC cable) will be arranged/provided by Rly in the Relay Room or in OFC/AUTO/EI Huts. The final commissioning will be done after filling up the Pre-	No.	65,395.00

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	Commissioning checklist (circulated by RDSO) with the OEM representative. Datalogger to be validated and commissioned before simulation test (SAT) and put in network, validation statement should be jointly signed by railway engineer (open line), railway engineer (construction) & OEM'S engineer before simulation test with name, designation and date. Payment for this item will be released only after submission of duly signed pre-commissioning checklist of data logger in standard RDSO format, joint signature of validation statement. OEM'S engineer will also impart training to rly staff at site for proper functioning /working and applications of data logger.		
0205	Supply of Data Logger System with 512 digital and 32 as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest. Inspection: RDSO for Datalogger. Payment: 80% on supply and balance on installation and Testing/SAT.	No.	4,42,494.00
0206	Installation, wiring, testing & commissioning of Micro Processor based Data Logger System with 512 digital and 32 analog inputs as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest It covers complete indoor relay room wiring from data logger to relay rack tag blocks, drawing/extension of power supply upto Data Logger. It includes relay room door lock checking arrangement, RDSO/CLS Panel output power supply monitoring arrangement & DG sets, ELD, IPS,UFSBI, Block Instruments, SPDs, Auto Changeover Equipments/Modems, TFBC Alarms, AFDAS Alarms, RDPMS Alarms, 48 Volts Telecom supply , and interlinking and networking of Data logger. Note: Total numbers of relays and other signalling functions/gears required to be wired as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines of Railway Board/RDSO/Zonal Railway. Networking of data logger includes extraction of data reports from the Control room. Exceptional reports are to be generated by a computer connected to a datalogger at the station and at a central location in the Control Room. Datalogger software should be able to generate exceptional reports for maintenance, safety and operations as per latest guidelines of Railway	No.	37,548.00

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	Board/RDSO/Zonal Railway. Datalogger to be installed at Site by OEM For networking, required communication channel (Quad/ OFC cable) will be arranged/provided by Rly in the Relay Room or in OFC/AUTO/EI Huts. The final commissioning will be done after filling up the Pre-Commissioning checklist (circulated by RDSO) with the OEM representative. Datalogger to be validated and commissioned before simulation test (SAT) and put in network, validation statement should be jointly signed by railway engineer (open line), railway engineer (construction) & OEM'S engineer before simulation test with name, designation and date. Payment for this item will be released only after submission of duly signed pre-commissioning checklist of data logger in standard RDSO format, joint signature of validation statement. OEM'S engineer will also impart training to Rly staff at site for proper functioning /working and applications of data logger.		
0207	Supply of Remote Terminal Unit (RTU) with 128 digital input & 16 analog input as per RDSO Spec. No. IRS (S) 99/2006 with Amdt.3.0 or latest. Inspection: RDSO. Payment: 80% on supply and balance on installation and Testing/SAT.	No.	2,53,359.00
0208	Installation, wiring, testing & commissioning of Micro Processor based Remote Terminal Unit (RTU) with 128 digital input & 16 analog input . It covers complete indoor relay room wiring from data logger to relay rack tag blocks, drawing/extension of power supply upto Data Logger. It includes relay room door lock checking arrangement, RDSO/CLS Panel output power supply monitoring arrangement & DG sets, ELD , IPS,UFSBI, Block Instruments, SPDs, Auto Changeover Equipments/Modems, TFBC Alarms, AFDAS Alarms, RDPMS Alarms, 48 Volts Telecom supply , and interlinking and networking of Data logger. Note: Total numbers of relays and other signalling functions/gears required to be wired as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines of Railway Board/RDSO/Zonal Railway. Networking of data logger includes extraction of data reports from the Control room. Exceptional reports are to be generated by a computer connected to a datalogger at the station and at a central location in the Control Room. Datalogger software should be able to generate	No.	24,973.00

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	<p>exceptional reports for maintenance, safety and operations as per latest guidelines of Railway Board/RDSO/Zonal Railway. Datalogger to be installed at Site by OEM For networking, required communication channel (Quad/ OFC cable) will be arranged/provided by Rly in the Relay Room or in OFC/AUTO/EI Huts. The final commissioning will be done after filling up the Pre-Commissioning checklist (circulated by RDSO) with the OEM representative. Datalogger to be validated and commissioned before simulation test / SAT and put in network validation statement should be jointly signed by railway engineer (open line), railway engineer (construction) & OEM'S engineer before simulation test with name, designation and date. Payment for this item will be released only after submission of duly signed pre-commissioning checklist of data logger in standard RDSO format, joint signature of validation statement. OEM'S engineer will also impart training to rly staff at site for proper functioning /working and applications of data logger.</p>		
0209	<p>Supply of centralized monitoring data logger networking system as per RDSO Specification No. IRS: S-99/2006 with Amdt.3.0 or latest for centralized acquisition of data from individual remote stations. This includes supply of Multi Front End Processor (FEP) and Dual Leased Line Modem required for data loggers networking as per technical specifications. The item also covers supply of PC based Failure Analysis System (FAS) as per technical specification (core i7 or higher version processor, speed 3.2 GHZ, 4 MB cache memory or higher, 8 GB RAM, 2TB HDD or Higher, 4 USB port, 1 Serial & 1 Parallel Port, 1VGA Port). It includes supply of a 27-inch LED monitor (HP/DELL or equivalent) & Network Management Software (NMS), Supply of On Line UPS (of proper capacity with 1 hr. back up,) Central Monitoring Unit (CMU) etc. for on line system monitoring. Technical Specifications are as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines.</p> <p>Inspection: (i) RDSO (for FEP) and (ii) Consignee for Modem, FAS, NMS, CMU, Online UPS.</p> <p>Payment: 80% on supply and balance on installation and Testing.</p>	Set	3,89,168.00

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0210	Installation, testing and commissioning of centralized monitoring data logger networking system as per RDSO Specification No. IRS: S-99/2006 with Amdt.3.0 or latest for centralized acquisition of data from individual remote stations. This includes installation of Multi Front End Processor (FEP) and Dual Leased Line Modem required for data loggers networking as per technical specifications. The item also covers installation of PC based Failure Analysis System (FAS) as per technical specification. It includes installation of a 27-inch LED monitor & Network Management Software (NMS), On Line UPS of proper capacity with 1 hr. back up, Central Monitoring Unit etc. for on line system monitoring. Technical Specifications are as per list circulated vide RDSO Letter No. STS/E/Data logger dtd.08.12.2011 or latest guidelines.	Set	97,292.00
0211	Supply of Multi Port Front End Processor (FEP) with (8port) as per technical specification IRS:S-99/ 2006 with Amdt.3.0 or latest. Inspection: (i) RDSO: If value of item in work more than 5 lakhs (ii) Consignee: subject to procurement from RDSO approved vendors if value of whole item in work less than 5 lakhs as per extant policy. Payment: 80% on supply and balance on installation and Testing.	Set	1,91,027.00
0212	Installation & commissioning of Multi Port Front End Processor (FEP) with 8 port as per technical specification IRS:S-99/2006 with Amdt.3.0 or latest.	Set	32,010.00
0213	Supply of T-Networking equipments suitable for Networking to the existing Data Logger equipments. This includes supply of all equipment / accessories required for the purpose e.g. modems and network accessories. Inspection: Consignee. Payment: 80% on supply and balance on installation and Testing.	Set	25,737.00
0214	Commissioning of T-Networking suitable for Networking to the existing Data Logger equipments. This includes supply of all equipment / accessories required for the purpose.	Set	6,933.00

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0215	Modification/upgradation, validation and alteration of data logger as per site engineer. This includes changes of NMDL software etc. Also data logger to be interfaced with PI/ EI equipment kept at the relay room. This work includes validation, wiring, etc. For this work necessary wire from relay to tag block & from tag block to data logger and tag block, terminal, wiring material etc. required for this work to be supplied by contractor. Note - Wire to be procured from RDSO approved firms and to be inspected by consignee.	Set	61,971.00
0216	Supply of Dual card E1 Converter as per RDSO Spec. No. IRS(S)99/2006(Amdt.3) or latest. Inspection: RITES/Consignee.	No.	43,294.00
0217	Supply of External E1 to Serial Converter as per RDSO Spec. No. IRS(S)99/2006 (Amdt.3) or latest. Inspection: RITES/Consignee.	No.	53,463.00
0218	Supply of RS232 Serial communication to Optical fiber media converters as per RDSO Spec. No. IRS (S) 99/2006 (Amdt.3) or latest. Inspection: RITES/Consignee.	No.	2,254.00
0219	Supply, installation testing and commissioning of SSI Protocol Card of Data logger Specification No. IRS:S-99/2006 (Amdt-3) or latest as per EI make. Inspection: RITES/Consignee.	No.	42,764.00
0220	Supply of Safety Point Alarm unit to alert ASM to set the points against the blocked line. Inspection: Consignee.	Per Stn.	65,820.00
0221	Installation Testing and commissioning of Safety Point Alarm for point reversal.	Per Stn.	7,218.00

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CHAPTER – 3 :
Indoor Relays , timers , Flasher, KLCR etc.

SL.No.	Description	Unit	Rate
0301	Relay fail-safe electronic time delay device with fixed timing (0-10) seconds and conforming to RDSO Spec. No. IRS:S-61/2000 with Amnd.1 or latest mounted on Q-series relay base & covered complete with connectors, retaining clip etc. Inspection: RDSO.	No.	2,153.00
0302	Relay fail-safe electronic time delay device with fixed timing (0-120) seconds and conforming to RDSO Spec. No. IRS:S-61/2000 with Amnd.2 and IRS:S-34 & S-23 with Amdt. upto date or latest mounted on Q-series relay base & covered complete with connectors, retaining clip etc. Inspection : RDSO.	No.	2,005.00
0303	Relay fail-safe electronic time delay device with fixed timing (0-60) seconds and conforming to RDSO Spec. No. IRS:S-61/2000 with Amnd.1 or latest mounted on Q-series relay base & covered complete with connectors, retaining clip etc. Inspection : RDSO.	No.	2,670.00
0304	Fail safe electronic flasher device as per RDSO Spec. No. RDSO/SPN/173/2002 Amdt.2 or latest. Inspection: RDSO.	No.	5,408.00
0305	Q-Series Neutral Line Relay (QN1 Type), 12F/4B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS-930 and RDSO Spec. No. IRS:S-34 & S-23 with Amdt. upto date or latest. Inspection: RDSO.	No.	4,016.00
0306	Q-Series Neutral Line Relay (QN1 Type), 8F/8B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS-930 and RDSO Spec. No. IRS:S-34 & S-23 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	4,372.00
0307	Q-Series Twin Neutral Line Relay (QNN1 Type), 6F/2B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS-960 and RDSO Spec. No. IRS:S-34 & S-23 or latest. Inspection: RDSO.	No.	4,949.00

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0308	Q-Series Twin Neutral Line Relay (QNN1 Type), 4F/4B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS-960 and RDSO Spec. No. IRS:S-34 & S-23 or latest. Inspection: RDSO.	No.	5,681.00
0309	Q-Series Magnetically Latched Neutral Line Relay (QL1 Type), 11F/4B , 24V DC complete with plug board (base plate), connectors and retaining clips and conforming to BRS-935A and RDSO Spec. No. IRS:S-34 & S-23 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	7,208.00
0310	Q-Series Magnetically Latched Neutral Line Relay (QL1 Type), 8F/6B , 24V DC complete with plug board (base plate), connectors and retaining clips and conforming to BRS-935A and RDSO Spec. No. IRS:S-34 & S-23 or latest. Inspection: RDSO.	No.	5,249.00
0311	Q-Series Neutral Line Relay (Style QN1K), 1000 Ohm , 6F/6B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS:930 & RDSO letter no STs/E/Relays/UEA/PI dated 30.05.97 Annexure-I and RDSO Spec. No. IRS:S-34 & S-23 or latest. Inspection: RDSO.	No.	3,919.00
0312	Q-Series LED ECR (Universal Type i.e.QECX-61) , 4F/4B complete with plug board (base plate), connectors, retaining clips etc. and conforming to BRS:941A STS/E/RELAYS/AC LIT LED SIGNAL/09-2002, Amdt.1 and RDSO Spec. No. IRS:S-34 & S-23 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	6,406.00
0313	Supply of DC neutral line relay QNA1K , AC immune, DC neutral line 24V , 6F/6B contacts , complete with plug board, retaining clip and connectors. Conforming to BRS:931A & RDSO letter no STs/E/Relays/UEA/PI dated 30.05.97 Annexure-II and IRS:S-34 & IRS:S-23 or latest. Inspection: RDSO.	No.	4,514.00
0314	Q-Series Line Relay (QNA1 Type), AC immunized , 8F/8B , 24 V DC along with plug board (base plate), connectors, retaining clips etc. and conforming to BRS-931A and RDSO Spec. No. IRS:S-34, S-23 and S-60 or latest. Inspection : RDSO.	No.	4,847.00

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0315	Q-Series Line Relay (QNA1 Type), AC immunized, 12F/4B , 24 V DC along with plug board (base plate), connectors, retaining clips etc. and conforming to BRS-931A and RDSO Spec. No. IRS:S-34, S-23 and S-60 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	4,494.00
0316	Q-Series Track Relay (QTA2 Type), AC immunized, 9 Ohms, 2F/1B along with plug board (base plate), connectors, retaining clips etc. and conforming to BRS:939A & 966(Appendix F2) and RDSO Spec No. IRS:S-34, S-23 with Amdt. Upto date as applicable or latest. Inspection: RDSO.	No.	4,777.00
0317	Q-Series Neutral Line Relay(QSPA1 Type), 24V DC, 8F/4B along with plug board (base plate), connectors, retaining clips etc. and conforming to BRS-933A and RDSO Spec. No. IRS:S-34, S-23 & S 60 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	6,508.00
0318	Contactor Unit (QBCA1 Type), 24 V DC, 2F(HD)/4B complete with plug board (base plate), connectors, retaining clips etc. and conforming to BRS-943 and RDSO Spec. No. IRS:S-34 & S-23 with Amdt. upto date as applicable or latest. Inspection: RDSO.	No.	8,464.00
0319	Supply of Key Lock Checking Relay (KLCR) working on 24V DC, AC Immunized , metal to metal, with different ward combinations and contact configuration 4F/4B with 2 extra ward plates, RDSO Spec. No. RDSO/SPN/219/2016 Ver.1.0 with Amendment-1 or latest. Inspection: RDSO.	No.	9,587.00
0320	Supply of Key Lock Checking Relay (KLCR) working with 24V DC, non AC Immunized type 4F/4B Spec. no. IRS: S-23, IRS:S-34 & IRS:S-46. Inspection: RDSO.	No.	9,473.00
0321	Fabrication and Supply of Box suitable for 8 No's KLCRs as per ER Drawing No. SI/TYP/101. Inspection: Consignee.	No.	17,534.00
0322	Q-Series Twin Neutral Line Relay (QNNA1 Type), 4F/4B , 24V DC complete with plug board (base plate), connectors and retaining clips etc. and conforming to BRS-960 and RDSO Spec. No. IRS:S-34 & S-23 or latest. Inspection: RDSO.	No.	5,328.00

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0323	Relay DC polarized 3-Position, 77 ohms, 1N/1R contacts, metal to metal center biased armature conforming to IRS:S-31/80(AMD-1), IRS:S-34 AND IRS:S23 (specification with Amdt. Up to date as applicable). Inspection: RDSO.	No.	10,036.00
0324	Sealing wire used for sealing of signaling relays & equipments. Inspection: Consignee.	Kg.	168.00
Relays - Metal to Metal			
0325	Supply of the Point chain group of Siemens make or functional equivalent with base plate as per specifications RSSK 3515/3, IRS:S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	38,425.00
0326	Supply of the RRI point group of Siemens make or functional equivalent with base plate as per specifications RSSK 3515/19, IRS:S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	80,706.00
0327	Supply of P1 point group of Siemens make or functional equivalent with base plate as per specifications RSSK 31/0001, IRS:S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	50,681.00
0328	Supply of route group of Siemens make or functional equivalent with base plate as per specifications RSSK 31/0002, IRS: S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	47,054.00
0329	Supply of signal group, 2 aspects of Siemens make or functional equivalent with base plate as per specifications RSSK 3525/2, IRS: S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	43,679.00
0330	Supply of signal group, 3 aspects of Siemens make or functional equivalent with base plate as per specifications RSSK 3525/46, IRS: S-46/74 Amdt.1 or latest. Inspection: RDSO.	No.	53,065.00
0331	Supply of shunt signal group of Siemens make or functional equivalent with base plate as per specifications RSSK 3526/67, IRS: S-6/74 Amdt.1 or latest. Inspection: RDSO.	No.	52,728.00

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0332	Supply of plug-in type non-AC immune, 60V DC neutral line relay (K50 relays of Siemens make or functional equivalent) with contact configuration 4F/4B, 5F/3B, 6F/2B with base plate as required by site in-charge as per specifications RSSK 30/0011, IRS:S-46/74 Amdt.1 or latest. The relay housing shall contain two miniature identical relays in a mini group. To be procured from RDSO approved firms. Inspection: RDSO.	No.	4,975.00
0333	Supply of plug-in type, mechanically interlocked Siemens type or functional equivalent, two 60V DC neutral line relays in mini group housing with contact configuration 4F/4B along with base plate as per specifications RSSK 30/0012, IRS:S-46/74 Amdt.1 or latest. To be procured from RDSO approved firms. Inspection: RDSO.	No.	5,643.00
0334	Supply of plug-in type AC immune, 60V DC neutral line relay (K50 relays of Siemens make or functional equivalent) with contact configuration 4F/4B with base plate as per specifications RSSK 30/0078, IRS:S-46/74 Amdt.1 or latest. The relay housing shall contain two miniature identical relays in a mini group. To be procured from RDSO approved firms. Inspection: RDSO.	No.	5,643.00

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CHAPTER – 4 :**Relay racks, CT racks, Tag Blocks, Terminal, Fuses, Indoor cables, Jumper wires etc.**

SL.No.	Description	Unit	Rate
0401	Supply of PVC insulated multi strand, single core copper conductor of size 16/0.2 mm as per RDSO Spec. No. IRS:S-76/89 (Amdt.-3) or latest. Each coil should be of Minimum 100 meters length. The color of the wire which is required will be specified by the Engineer in charge. Inspection: RDSO.	Km.	10,633.00
0402	Supply of 1 x 2.5 (36/0.3) Sq.mm. multi strand copper wire as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. The color of the wire which is required will be specified by the Engineer in charge. Inspection: RDSO.	Mtr.	28.00
0403	Supply of 1 x 10 (140/0.3) Sq.mm. multi strand copper power wire as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. The color of the wire which is required will be specified by the Engineer in charge. Inspection: RDSO.	Mtr.	134.00
0404	Supply of 1 x 16(126/0.3) Sq.mm. multi strand copper power wire as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. The color of the wire which is required will be specified by the Engineer in charge. Inspection : RDSO.	Mtr.	173.00
0405	Supply of 1 x 25 (196/0.4) Sq.mm. multi strand copper power wire as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. The color of the wire which is required will be specified by the Engineer in charge. Inspection: RDSO	Mtr.	342.00
0406	Supply of 1 x 35 (276/0.4) Sq.mm. multi strand copper power wire as per RDSO Spec .No. IRS:S-76/89 (Amdt.3) or latest. The color of the wire which is required will be specified by the Engineer in charge. Inspection: RDSO.	Mtr.	214.00

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0407	Supply of indoor PVC jumper wire (1 x 0.6 mm.) of all colors as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. Note: wires colors will be specified/decided by the site Engineer in charge. Inspection: RDSO.	Km.	3,325.00
0408	Supply of indoor PVC jumper wire (1 x 1 mm.) of all colors as per RDSO Spec. No. IRS:S-76/89 (Amdt.3) or latest. Note: wires colors will be specified/decided by the site Engineer in charge. Inspection: RDSO.	Km.	8,180.00
0409	Supply of PVC insulated Railway Signaling multi-core Indoor Cable 60 core (0.6 mm. dia.) conforming to IRS:76/89 (Amdt.3) or latest. Inspection: RDSO.	Km.	2,33,804.00
0410	Supply of PVC insulated Railway Signaling multi-core Indoor Cable 40 core (0.6 mm. dia.) conforming to IRS:76/89 (Amdt.3) or latest. Inspection: RDSO.	Km.	1,77,861.00
0411	Circuit wiring/jumpering as per circuit diagrams in the relay racks/IDF rack tag blocks. This includes preparation of Jumper sheets by wire-man duly checked by firm's site supervisor & wire to wire testing as per circuit diagram. Any wrong jumper done by a wireman will not be paid & correction shall be done free of cost. Jumper wires will be supplied & issued by Railways. Good quality solder resin core to be supplied by contractor for soldering of Jumper wires. Soldering of jumper wires to be done after completion of testing by Railways. This item is to be used for only Alterations in any EI/PI/RRI. Inspection: Consignee.	Per Jumper	15.00
0412	Supply of Relay Rack as per DRG.NO.S&T/C-20/2001 with modification vide CSTE/ER'S LETTER NO.SG.42/9, DT.15/3/2016 to accommodate 100 relays complete with fittings. Inspection: RITES/Consignee.	No.	27,615.00
0413	Installation of Relay Rack Assembly including IDF pillars if any complete with wall supports, scaffolding, ladders, runway for cables, fixing of Relay / Relay group base plates, fixing of Tag blocks etc. The work shall be done as per approved plan, extant practice on ER & the instructions of Rly engineer at site.	No.	10,376.00

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0414	Fabrication, supply and fixing aluminum ladder of size 25 X 25 X 5 mm., 200 mm. width, arrangements for drawing various wires in the battery, equipment and relay rooms. Inspection: Consignee.	Mtr.	696.00
0415	Supply of Cable termination Racks (CTR) as per Drawing No. ER DRG.NO. S&T/C-19/2001 or latest and must be powder coated of stone grey color. Inspection: RITES/Consignee.	No.	54,982.00
0416	Execution, Installation of Cable Termination Rack. Fixing & installation of CTR (Rack erection, tripod, insulation bush, supporting angles, grouting, fixing of hylam sheet, fixing of required terminals and fuses, holes on Hylam sheet for wiring. <u>Hylam sheet, terminal, fuses will be supplied by Railways.</u>	No.	7,759.00
0417	Supply of PBT ARA terminal 1 WAY 25 mm. , Drg. No. S-23741A, Alt-4. as per IRS SPECN.NO. IRS:S-75-2006 (Rev.2) OR latest. Material to be procured from RDSO's approved firm only. Inspection: RDSO.	No.	98.00
0418	Supply of PBT ARA terminal 1 WAY 60 mm. , DRG.NO.23745, Alt-5 as per IRS Spec. No. IRS:S-75/2006 (Rev.-2.) or latest. Material to be procured from RDSO's approved firm only. Inspection: RDSO.	No.	118.00
0419	Supply of PBT ARA terminal 6 WAY 25 mm. , DRG.NO.23756, ALT-3. as per IRS Spec. No. IRS:S-75/2006 (Rev.2.) or latest. Material to be procured from RDSO's approved firm only. Inspection: RDSO.	No.	612.00
0420	Supply of Non deteriorating type FUSE as per Spec No. IRS:S-78/2006 with latest amendments rating (2A/6A/10A/16A/20A) type, cylindrical. Inspection- RDSO.	No.	77.00
0421	Supply of fuse BASE (PBT) to Spec. No. IRS-S-78/2006 or latest, Drg. No. SA-23748 with fuse inserts cartridge, non-deteriorating type to Spec. No. IRS:S:78/2006 with latest amendment, to be mounted inside the location box on the hylam sheet. Inspection: RDSO.	No.	225.00

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0422	Supply of Tag block 200 way/160 way with PVC covers as per IRS:S-77/2006 (Rev.1) or latest & Drg. No. SA-24751 & 52. Requirement of each type shall be specified by Engineer-in-charge. NOTE: In case ABB type relays are proposed to be used with 100 way block then Two 100 way Tag Block will be considered as one 200 way Tag Block. Inspection: RDSO	No.	1,523.00
0423	Supply of Tag block 96/100/120 with PVC Cover - as per requirement as per IRS:S-77/2006 (Rev.1) or latest & Drg. No. SA-24753. Requirements of each type shall be specified by Engineer-in-charge. Inspection: .RDSO	No.	1,398.00
0424	Termination of Outdoor Cables (Main Cables /tail cables) in location boxes, cable termination rack in relay room, station building, etc. The item includes dressing of cables and wires with dressing threads as per standard practice. All material required for this item will be supplied by the contractor (Lugs, eyelets, Power cables should be terminated with suitable lugs/eyelets wherever applicable).	Per Conductor	6.00
0425	Supply of Disconnect Terminal Block , Screw less type, 4-wire front entry (Two in-put & Two out-put) as per RDSO Spec. No. RDSO/SPN/189/2004 With latest amendments. The color will be decided by the Engineer - in - Charge. (Preferably In Blue, Red & Grey Colors in the ratio of 1:2:3) Inspection: RDSO	No.	69.00
0426	Supply of End plate 2.5 mm./0.091 in thick as per RDSO Spec. No. RDSO/SPN/189/2004 With latest amendments. Inspection: RDSO.	No.	13.00
0427	Supply of End Stopper 10 mm./0.0394 in width as per RDSO Spec. No. RDSO/SPN/189/2004 With latest amendments. Inspection: RDSO.	No.	13.00
0428	Supply of Carrier Rails for above 35 mm. x 7.5 mm., 1 mm./0.039 in thickness un-slotted type as per site requirement. Inspection: Consignee.	Mtr.	128.00
0429	Supply of Markers strip as per RDSO Spec. No. RDSO/SPN/189/2004 with latest amendments. Inspection: RDSO.	No.	20.00

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0430	Supply of Disconnect Terminal Block , Screw less type, 2-wire front entry (One input & One output) as per RDSO Spec. No. RDSO/SPN/189/2004 with latest amendments. The color will be decided by the Engineer - in - Charge. (Preferably In Blue, Red & Grey Colors in the ratio of 1:2:3). Inspection: RDSO.	No.	52.00
0431	Supply of shorting link (jumper) (suitable for 0.2 to 16 sq.mm. terminal block). Inspection: RDSO.	No.	3.00
0432	Supply of Fuse terminal block with LED indication up to 2.5 sq. mm. screw type one in one out suitable for 400mA/630mA/1A/1.6A/2A/4A/6.3A/8A/10A or as decided by Engineer in charge as per RDSO SPN/189/2004 or latest. Inspection: RDSO.	No.	68.00
0433	Supply of Fuse links of (400 mA, 630 mA, 1A, 1.6A, 2A, 4A, 6.3A & 10A, 250mA as per RDSO Spec. No. RDSO/SPN/189/2004 With latest amendments Inspection: RDSO.	No.	56.00
0434	Supply of Indicative type Fuse base/ holder with cap, suitable to G type fuse of capacity 0.63A - 3.0A. (System, Rapid, Malnad or RBCO make or similar). Inspection: Consignee.	No.	57.00
0435	Supply of Indicative type Fuse suitable to G type fuse base/holder of capacity 0.63A - 3.0A (System, Rapid, Malnad or RBCO make or similar). Inspection: Consignee.	No.	20.00
0436	Supply of Indicative type Fuse suitable to G type Without holder 6A (System, Rapid or Malnad or RBCO make or similar) as per IRS:S-80/92 or latest. Inspection: RDSO.	No.	39.00
0437	Supply D type fuse block non indicating type low voltage non deteriorating fuse base suitable for fuse link of capacity 2A/6A/10A as per specification IRS:S-80/92 or latest. Quantity break up of each type of fuse block will be specified by Engineer in-charge. Inspection: RDSO.	No.	34.00

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0438	Supply of D type fuse link non indicating type low voltage non detonating, capacity 2A/6A/10A as per specification IRS:S-80/92 or latest. Quantity break up of each type of fuse block will be specified by Engineer in-charge. Inspection: RDSO.	No.	35.00
0439	Fabrication, Transportation and fixing of aluminum ladder at site made of Aluminum angle of size 38 mm. x 5mm width 280 mm., Flat size 25 mm. x 5 mm. with powder coated color as desired by engineer in charge at site and fixing, Drilling of suitable holes for fixing of Hylam sheet 3mm thickness on ladder and 2 No's of PVC trough 100 mm. with cover fixed on Hylam sheet along the ladder with all fixtures necessary ancillary materials required for fixing to be supplied and as directed by engineer in charge at site. Inspection: Consignee.	Mtr.	4,059.00
0440	Supply of Fuse Auto Changeover system of various types of fuses with audio visual indication as per specification RDSO/SPN/209/2012 Ver.2.0 or latest. One module shall be able to cater for 32 numbers of fuses. Inspection: RDSO.	Set.	46,217.00
0441	Supply of Lugs and Eyelets: Inspection: Consignee.	No.	
	a) Aluminum lugs 25 Sq.mm. of reputed make.	No.	25.00
	b) Copper lugs 10 Sq.mm. of reputed make.	No.	12.00
	c) Copper eyelets to suit 16/0.2 wire Dowefi's or similar make.	No.	3.00
	d) Copper eyelets to suit 10 Sq.mm. wire Dowell's or similar make.	No.	6.00
0442	Supply of LED holders with LEDs of size 5 mm with 0.5 Watt resistance. To be supplied as per requirement of site in-charge. Inspection- Consignee.	No.	18.00
0443	Supply of the following resistors/condensers/diodes. a) 50V, 470 pF electrolytic capacitor — 20 Nos. b) 50V, 1000 pF electrolytic capacitor — 20 Nos. c) 50V, 2200 pF electrolytic capacitor— 20 Nos. d) 100 Ohms, 10W wire wound resistance — 20 Nos. e) BY127 diode — 10 Nos. f) PVC Insulation tapes of 25m. length — 25 Nos. Inspection- RITES/Consignee.	Set.	3,731.00

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0444	Supply of 50V, 10000pF electrolytic condenser of reputed brands like Philips, Keltron or similar. Inspection- RITES/Consignee.	No.	481.00
0445	Indoor Painting including particulars of CT rack, relay rack, Equipment particulars (IPS, Data logger, UFSBI, ELD, Charger, battery particulars, block instrument, VDU and any other equipments in relay room/IPS room / Battery room / Telecom room / Maintenance room /SM room), earthing particulars including ring earth particulars outside as applicable and any other indoor particulars as per technical specification for following stations :		
	a) Up to Three Road Station b) Note: Station, Goomty, IB Hut, Auto Hut, LC Hut will be treated as one location	Per location	15,150.00
	c) Three to Five Road Station d) Note: Station, Goomty, IB Hut, Auto Hut, LC Hut will be treated as one location	Per location	22,028.00

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CHAPTER - 5 :
Power Supply Equipments, Batteries.

SL.No.	Description	Unit	Rate
0501	Supply of Integrated power supply (IPS) system as per <u>RDSO Spec. No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest</u> and also as per ER letter no-S.42/2/Vol.-III dated-26.11.2025 (Typical Application Central EI) along with 300AH Low maintenance Lead Acid (LMLA) or Valve Regulated Lead Acid (VRLA) Battery Bank with complete accessories as per the drawing. Inspection: RDSO. Payment: 70% on supply and balance on installation and testing.	No.	15,08,040.00
0502	Supply of Integrated power supply (IPS) system as per <u>RDSO Spec. No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest</u> and also as per ER letter no-S.42/2/Vol.-III dated-26.11.2025 (Typical Application End Goomty) along with 200AH Low maintenance Lead Acid (LMLA) or Valve Regulated Lead Acid (VRLA) Battery Bank with complete accessories as per the drawing. Inspection: RDSO. Payment: 70% on supply and balance on installation and testing.	No.	12,73,810.00
0503	Supply of Integrated power supply (IPS) system as per <u>RDSO Spec. No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest</u> and also as per ER letter no-S.42/2/Vol.-III dated-26.11.2025 (Typical Application Auto/IB/LC Hut) along with 200AH Low maintenance Lead Acid (LMLA) or Valve Regulated Lead Acid (VRLA) Battery Bank with complete accessories as per the drawing. Inspection: RDSO. Payment: 70% on supply and balance on installation and testing.	No.	12,27,790.00

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0504	Installation, grouting, Testing and Commissioning of Integrated Power Supply System as per Specification No. RDSO/SPN/165/2023 Ver.4.0, Amdt.1 or latest. It will include initial charging of Battery, Installation of SPD/LVD, Installation wiring of SM Monitoring Panel, Wiring of Alarms/SPDs to data logger, wiring between IPS to SPD, Installation shall be done as per RDSO TANs, with best installation practices and PCCL by the authorized competent Engineer of the OEM.	No.	70,082.00
0505	Supply of IPS SMR 110V VC/ 20 Amp. As per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. RDSO approved make, compatible for the existing IPS make specified by Purchaser. Inspection: RDSO	No.	77,501.00
0506	Supply of IPS DC-DC converter 24-32V DC, 5 Amp/10 Amp or 60-66 V DC, 5 Amp or 60-100V DC, 1 Amp/3 Amp/5 Amp as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	30,810.00
0507	Supply of IPS Transformer 220V AC/110V AC 1000 VA as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	28,762.00
0508	Supply of IPS Transformer 220V AC/110V AC 500 VA as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	24,613.00
0509	Supply of IPS Inverter 1.5KVA for IPS as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	58,813.00
0510	Supply of IPS Inverter 2 KVA for IPS as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	84,403.00

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0511	Supply of 1.5 KVA CVT Regulator for IPS as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	71,947.00
0512	Supply of 2 KVA CVT Regulator for IPS as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	94,133.00
0513	Supply of 3 KVA CVT Regulator for IPS as per Specification No. RDSO/SPN/165/2023 (Ver.4.0) Amdt.1 or latest. Make: RDSO approved make, compatible for the IPS make specified by Purchaser. Inspection: RDSO.	No.	1,18,721.00
0514	Supply of ASM Panel Module as per Specification No. RDSO/SPN/165/2023 Ver.4.0, Amdt.1 or latest. It should be compatible with the existing system as specified by the Railway in charge. Inspection- RDSO	No.	19,242.00
0515	Supply of Self Regulating Type Battery Charger, 230V AC/24V DC, 20 Amps as per RDSO Spec. No. IRS:S-86/2000 (Amdt.4) or latest. Inspection: RDSO.	No.	31,720.00
0516	Supply of Self Regulating Type Battery Charger, 230V AC/24V DC, 30 Amps as per RDSO Spec. No. IRS:S-86/2000 (Amdt.4) or latest. Inspection: RDSO.	No.	51,463.00
0517	Supply of Self Regulating Type Battery Charger, 230V AC/60V DC, 20 Amps as per RDSO Spec. No. IRS:S-86/2000 (Amdt.4) or latest. Inspection: RDSO.	No.	45,151.00
0518	Supply of Self Regulating type Battery Charger, 230V AC / 110V DC, 30A single phase, signalling & telecom Installation as per Specification IRS: S 86-2000 Amd.4 or latest. Inspection: RDSO.	No.	1,09,426.00
0519	Supply of 2V/80AH uncharged Low Maintenance Lead Acid (LMLA) secondary cell, shelf mounting type conforming to RDSO Spec. No. IRS:S-88/2004 or latest with inter cell connectors, nuts and bolts etc. Inspection: RDSO.	No.	4,384.00

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0520	Supply of 2V/120AH uncharged Low Maintenance Lead Acid (LMLA) secondary cell , shelf mounting type conforming to RDSO Spec. No. IRS:S-88/2004 or latest with inter cell connectors, nuts and bolts etc. Inspection: RDSO.	No.	5,399.00
0521	Supply of 2V/200AH uncharged Low Maintenance Lead Acid (LMLA) secondary cell , shelf mounting type conforming to RDSO Spec. No. IRS:S-88/2004 or latest with inter cell connectors, nuts and bolts etc. Inspection: RDSO.	No.	6,395.00
0522	Supply 2V/300AH of uncharged Low Maintenance Lead Acid (LMLA) secondary cell , shelf mounting type conforming to RDSO Spec. No. IRS:S-88/2004 or latest with inter cell connectors, nuts and bolts etc. Inspection: RDSO.	No.	7,145.00
0523	Supply of 2V/500AH uncharged Low Maintenance Lead Acid (LMLA) secondary cell , shelf mounting type conforming to RDSO Spec. No. IRS:S-88/2004 or latest with inter cell connectors, nuts and bolts etc. Inspection: RDSO.	No.	12,683.00
0524	Supply of maintenance free, VRLA battery/Cell 2V, 200AH as per RDSO Spec. IRS: S-93/96(B) (Amnd.1) or latest. Inspection: RDSO.	No.	3,494.00
0525	Supply of maintenance free, VRLA battery/Cell 2V, 300AH as per RDSO Spec. IRS: S-93/96(B) (Amnd.1) or latest. Inspection: RDSO.	No.	5,235.00
0526	Charging of 2V/80AH lead acid cell (Secondary cell) of various capacities as per Manufacturer's/Railway engineer's instruction. Acid and distilled water to be supplied by the contractor. Specific gravity acid should be approved type duly inspected by consignee. This includes installation and commissioning of the battery in circuit. Battery to be kept on a wooden rack.	No.	462.00

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0527	Charging of 2V/120AH lead acid cell (Secondary cell) of various capacities as per Manufacturer's/Railway engineer's instruction. Acid and distilled water to be supplied by the contractor. Specific gravity acid should be approved type duly inspected by consignee. This includes installation and commissioning of the battery in circuit. Battery to be kept on a wooden rack.	No.	493.00
0528	Charging of 2V/200AH lead acid cell (Secondary cell) of various capacities as per Manufacturer's/Railway engineer's instruction. Acid and distilled water to be supplied by the contractor. Specific gravity acid should be approved type duly inspected by consignee. This includes installation and commissioning of the battery in circuit. Battery to be kept on a wooden rack.	No.	703.00
0529	Charging of 2V/300AH/500AH lead acid cell (Secondary cell) of various capacities as per Manufacturer's/Railway engineer's instruction. Acid and distilled water to be supplied by the contractor. Specific gravity acid should be approved type duly inspected by consignee. This includes installation and commissioning of the battery in circuit. Battery to be kept on a wooden rack.	No.	1,078.00
0530	Supply of pure sine wave 500 VA online inverter input voltage: 24V DC, output voltage: 110V AC as per RDSO Spec No. IRS:S-82/92 (Amnd.2) or latest. Note-Installation should be through OEM's representative. Inspection: RDSO.	No.	42,432.00
0531	Supply of Single Phase Ferro Resonant Type Voltage Stabiliser, 230V AC, 5KVA as per RDSO Spec. No. IRS:S-74/89 (Amnd.6) or latest. Inspection: RDSO.	No.	71,392.00
0532	Supply of Electrostatic Rubber Matting of thickness 2 mm. as per IS-15652/2006 with suitable adhesive material for working voltage up to 11 KV/33 KV. Inspection: Consignee.	Sq. m.	2,368.00

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0533	<p>Supply of Control and Distribution panel for Color Light Signaling supply in 25KV AC traction system suitable to work on 3 input supplies 10KVA AT, 240V AC single phase, 50Hz, 60A capacity as per Specification TI/SPC/PSI/CLS/0020 with A & C Slip 1 to 4 or latest, CORE approved Drg. No. ASCOS/CORE/2005/01 Rev.02 or latest. The panel shall have automatic changeover facility and shall be supplied with one additional rotary switch and meter. The panel shall be of Suntron or similar make.</p> <p>Inspection: RDSO/RITES.</p>	No.	61,086.00
0534	<p>Supply of Control and Distribution panel for Color Light Signaling supply in 25KV AC traction system suitable to work on 3 supplies 25KVA AT, 240V AC single phase, 50Hz, 150A capacity Specification TI/SPC/PSI/CLS/0020 with A & C Slip 1 to 4 or latest, CORE approved Drg. No. ASCOS/25KVAICORE/2007/01 Rev.01 or latest. The panel shall have automatic changeover facility and shall be supplied with one additional rotary switch and meter. The panel shall be of Suntron or similar make.</p> <p>Inspection: RDSO/RITES.</p>	No.	2,25,342.00
0535	<p>Supply of Corium Z 105 Battery cleaner and terminal conditioner of 500 ml. tin can.</p> <p>Inspection: Consignee.</p>	No.	5,224.00

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Eastern Railway

No.SG.42/2/Vol-III

Kolkata, dated: 26-11-2025.

CSTE/Pig-I, CSTE/Proj, CSTE/HQ, CSTE/Con, CSE, CSE-II, CCE,
 Sr. DSTE/ HWH /SDAH/ ASN/ MLDT,
 Dy CSTE/ W/ SDAH/ HWH, Dy CSTE/T/HQ,
 Dy CSTE/W/II SDAH, Dy CSTE/W/III/SDAH,
 Dy CSTE/Proj/ASN, Dy CSTE/Proj/II/ASN,
 Dy CSTE/ Con/ HWH/ SDAH, Dy CSTE/Con/II/HQ
 Dy CSTE/W/D&D/HQ, Dy CSTE/Con/D&D/HQ
 Dy CPM/S&T/GSU/SDAH,
 Eastern Railway.

Sub:-Drawings and Details of IPS as per RDSO Spec. No. RDSO/SPN/165/2023 Ver. 4.0 Amdt. 1 or latest for Central, End Goomty and ABS-IB-LC.

Ref:- This office even letter no dated- 15.09.2025

Drawings and Details like Information by Indentor, Typical scheme for IPS Block Diagram, Toolkit, Spares and SPDs for IPS for Central, End Goomty and ABS-IB-LC is attached herewith for procurement.

- 1) Drawings and Details for IPS 300 AH for Central (Page no-2 to 6).
- 2) Drawings and Details for IPS 200 AH for End Goomty (Page no-7 to 11).
- 3) Drawings and Details for IPS 200 AH for ABS-IB-LC (Page no-12 to 16).

Above shall be the minimum configuration to be followed for each type of IPS. Additional modules can be added for any other specific requirement.

It supersedes earlier letter even No. dated.15.09.2025.

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(Brajesh Kushwaha)
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 for Principal Chief Signal & Telecom. Engineer,
 Eastern Railway

Page 1 of 16

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IPS for 300AH for Central INFORMATION BY INDENTOR			
SN	Item	To Be Filled IN	External Circuits to be provided with SPD as per specs
1	SMPS based integrated power supply system (IPS) suitable for signaling installations without ATTC at Station / IBS / LC Gate (up to 15KV/signaling load) (Mention any of the above)	ABC	
2	Total number of SMPS based integrated power supply system (IPS) required with same configuration.	1	
3	RE area/ Non-RE area	RE AREA ONLY	
4	Type of Battery (Low Maintenance or VRLA or any other cells approved by RDSO)	LMCA	
5	Capacity of Battery (120AH / 200AH / 300AH)	300	
6	Requirement of Battery Rack - If yes type of Battery racks (MS) for VRLA Batteries, Wooden rack for low maintenance batteries.	NOT REQUIRED	
7	Distance between IPS Room & Status Monitoring Panel Installation Place, (in meters)(vendor will provide cable up to 100 mtr with each IPS)		This cable is not required. Railways do use 12x1.5 Ggg Cable
8	Distance between IPS rack & battery, (in meters)	100 Meters	
9	SMPS Charger PRMC Module (N+1)	4+1=5	
10	Required Load in KVA for Track circuit/LC Gate (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note: N is no of modules required based on load calculation of Track circuit. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
11	Required Load in KVA for Signal lighting (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note: N is no of modules required based on load calculation of Signal lighting. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
12	Details of DC-DC converters Note: Purchaser should write N/A if particular modules are not required. Number of modules shall be chosen considering total system load up to 15 KVA.		
STANDARD DC-DC MODULES			
	Module	Rating	No of Modules
i	Relay Internal (n+2)	24-32V/10 A for H to C Relay	4
ii	Relay External (n+1) (BWN END/HWH END)	24-32V/ 10 A for H to C Relay	4
iii	Ade Counter (n+1)	24-40V/ 10 A	18
iv	HKT & Magneto (n+1)	12-28V/0.1 A	2
v	Block Tele (n+1)	03-06 V/0.1 A	4
vi	Data Logger (n+1) 02 Numbers(Mandatory)	24-32V/10A	2
vii	Spare Call (n+1) 02 Numbers (Mandatory)	2-12/5A	2
viii	AFDAS	24-32V/10A	2
ix	RDPMS	24-32V/10A	2
x	FUTURE SLOTS(CSP)	24-40V/ 10 A	2
xi	Electric Lifting Barrier (n+1)	24V-32V/10A	2
xii	MSDAC Reset Box Main/Dual (n+1)	24V-32V/10A	2
xiii	MSDAC Cabinet Fan/Light (n+1)	24V-32V/10A	2
		Total Module Required in DC-DC Converter Section	40
13	110 DC Terminations		
i	EI ROOM MAIN	Fuse - 10 A	
ii	EI ROOM STANDBY	Fuse - 10 A	
iii	SM Room MAIN	Fuse - 8 A	
iv	SM Room STANDBY	Fuse - 8 A	
v	Maintainer Room Main	Fuse - 8 A	
vi	Maintainer Room Standby	Fuse - 8 A	
vii	ELB 110 VDC Hand Generator Type	Fuse - 10 A	External
viii	POINT	Fuse - 32 A	External
ix	Spare 1	Fuse - 32 A	
x	Spare 2	Fuse - 20 A	
14	Provision of Remote test unit/ IoT device along with sensors for Remote monitoring of Voltage and current of IPS modules	NO	
15	Integration of Remote Test unit with existing RDPMS systems.	YES	
16	Requirement of Extended Warranty Period (Numbers of years)	NO	As per specs only i.e. 4 years from Date of Commissioning

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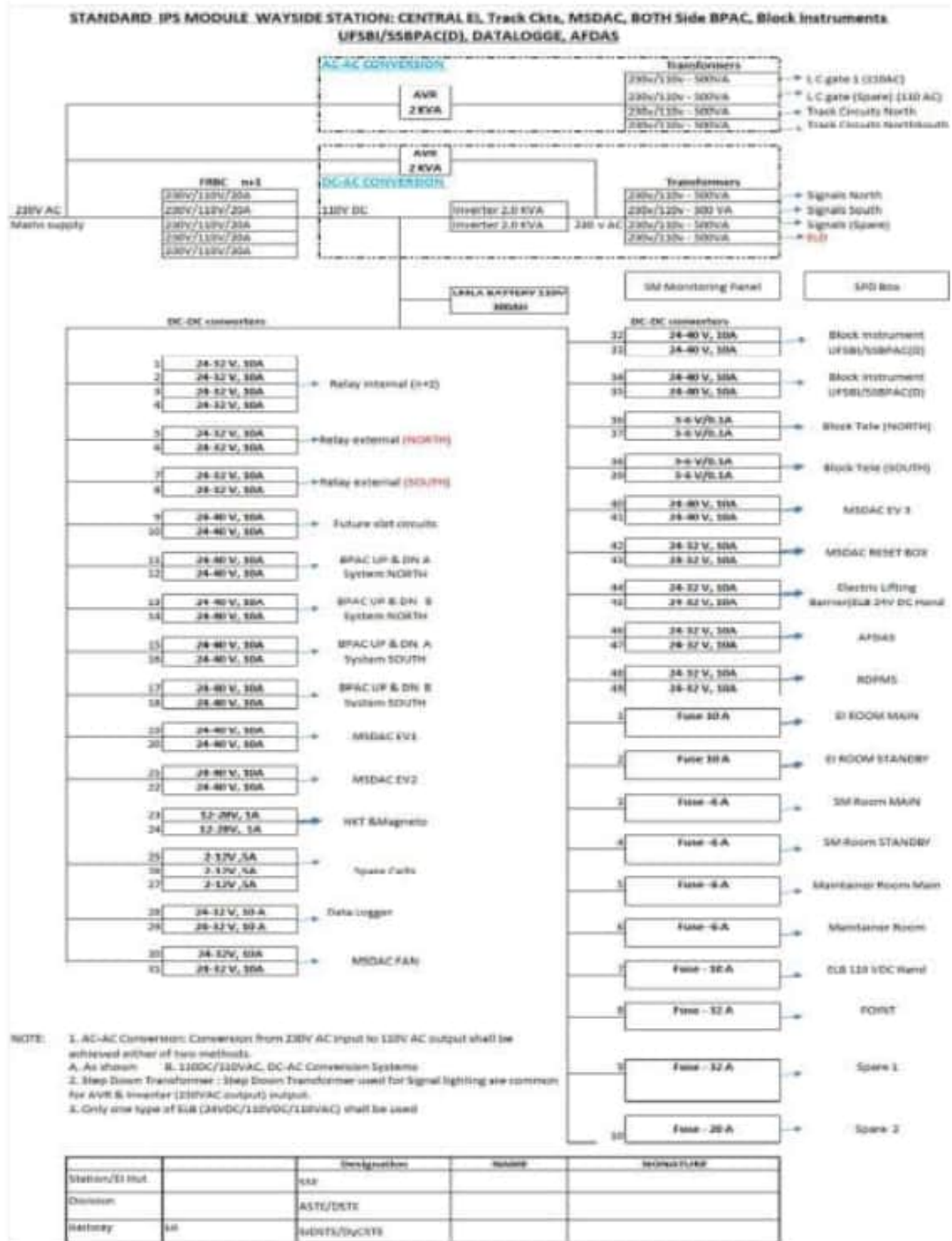
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IPS for 300AH Central**DETAILS OF TOOLS IN TOOLKIT WITH IPS**

Note:- Every IPS shall be supplied along with tool kit and shall be placed inside the IPS rack in a suitable Bag/Box.

SN	Description of Tools	Size	Make	Quantity
1	Double ended spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
2	Box spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
3	Screw driver set (05 pieces)	6"	Taparia	01 set
4	Screw driver small aligner	—	Taparia	01
5	Screw driver big	12"	Taparia	01
6	Cutting plier	6"	Taparia	01
7	Nose plier	6"	Taparia	01
8	Plier	6"	Taparia	01
9	Adjustable Torque wrench	-	Taparia	01

IPS for 300AH Central

LIST OF SPARES TO BE SUPPLIED WITH IPS		
1	FRBC MODULE (as cold stand by)	1 Module
2	Invertor Module as cold stand by	1 Module 2 KVA
3	DC-DC Converter Module	
i	24-32/10A	2 Modules
ii	24-40/10A	2 Modules
iii	12-28/10A	1 Module
iv	12-28/1A	1 Module
v	03-06 V/0.1 A	1 Module
4	Automatic Voltage Regulator (AVR)	1 Module 2 KVA
5	Fuses . All types of fuses used in IPS subsystem	1 set
6	Transformer as cold standby	2 Modules 500 VA
7	Fan. Used for INV/SMR/AC-AC conv	2 Nos
8	Cells LMLA 2V/300 AH	5 Nos

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IPS for 300AH Central

IPS 2023			Warranty 4 Years from Commissioning		
			Indication	PF Contact	
SPD Box	Line-Neutral	B Type I	YES	YES	Spark Gap Type
	Line-Neutral	C Type II	YES	YES	Thermal Disconnecting Type
	Neutral-Earth	B Type I	YES	YES	Spark Gap Type
External Circuits		C Type II	YES	Yes	Thermal Disconnecting Type
for ±24V-110V AC/DC supplies at the output side inside the rack of IPS. These shall be provided for External circuits i.e. Relay external circuit, Ade counter circuit, point machine circuit, AC-AC converters, Inverter output and output of any other modules which are directly connected to external circuits.					
Note: B&C Shall be from same OEM					

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IPS 200 AH for End Gantry INFORMATION BY INDENTOR			
SN	Item	To Be Filled In	External Circuits to be provided with SPD as per specs
1	SMPS based integrated power supply system (IPS) suitable for signalling installations without AFTC at Station / IRS / LC Gate (up to 15KV/signalling load) (Mention any of the above)	400	
2	Total number of SMPS based integrated power supply system (IPS) compared with same configuration.	1	
3	RE area/ Non-RE area	RE AREA ONLY	
4	Type of Battery (Low Maintenance or VRLA or any other cells approved by RDSO)	LMLA	
5	Capacity of Battery (120AH / 200AH / 300AH)	200	
6	Requirement of Battery Rack - If yes type of Battery racks (MS) for VRLA batteries, Wooden rack for low maintenance batteries.	NOT REQUIRED	
7	Distance between IPS Room & Status Monitoring Panel installation Place. (in meters)(vendor will provide cable up to 100 mtr with each IPS)		This cable is not required. Railway & key 12x1.5 Sigg Cable
8	Distance between IPS rack & battery. (in meters)	100 Meters	
9	SMPS Charger FRBC Module (N+1)	3+1=4	
10	Required Load in KVA for Track circuit/LC Gate (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note: N is no of modules required based on load calculation of Track circuit. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
11	Required Load in KVA for Signal lighting/ELD (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note: N is no of modules required based on load calculation of Signal lighting. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
12	Details of DC-DC converters Note: Purchaser should write NIL if particular modules are not required. Number of modules shall be chosen considering total system load up to 15 KVA.		
STANDARD DC-DC MODULES			
	Module	Rating	No. of Modules
i	Relay Internal (n+2)	24-32V/10 A for M to C Relay	2
ii	Relay External (n+1) (BWH END/nWH END)	24-32V/ 10 A for M to C Relay	2
iii	Axle Counter (n+1)	24-40V/ 10 A	8
iv	MKT & Magneto (n+1)	13-20V/01 A	2
v	Block Tele (n+1)	03-06 V/0.1 A	6
vi	Data Logger (n+1) 02 Numbers(Mandatory)	24-32V/10A	2
vii	Spare Cell (n+1) 02 Numbers (Mandatory)	2-12/5A	2
viii	Panel Indications	12-20V/10 A	2
ix	AFDAS	24-32V/10A	2
x	RDPMs	24-32V/10A	2
xi	FUTURE SLOTS(OP)	24-40V/ 10 A	2
xii	Electr Lifting Barrier (n+1)	24V-32V/10A	2
xiii	MSDAC Reset Box Main/Dual (n+1)	24V-32V/10A	2
xiv	MSDAC Cabinet Fan/Light (n+1)	24V-32V/10A	2
		Total Module Required in DC-DC Converter Section	34
13	110 DC Terminations		
i	EL ROOM MAIN	Fuse 10 A	
ii	EL ROOM STANDBY	Fuse 10 A	
iii	Maintainer Room Main	Fuse - 6 A	
iv	Maintainer Room Standby	Fuse - 6 A	
v	ELB 110 VDC Hand Generator Type	Fuse - 10 A	External
vi	POINT	Fuse - 12 A	External
vii	Spare 1	Fuse - 12 A	
viii	Spare 2	Fuse - 20 A	
14	Provision of Remote test unit/ IoT device along with sensors for Remote monitoring of Voltage and current of IPS modules	NO	
15	Integration of Remote Test unit with existing RDPMs system.	YES	
16	Requirement of Extended Warranty Period (Numbers of years)	NO	As per specs only i.e. 4 years from Date of Commissioning

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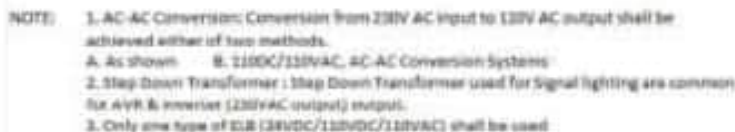
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		Designation	NAME	SIGNATURE
Station/El Hut		IDE		
Division		ACTE/DATE		
Railway	ER	SEDATE/DyCSE		

IPS 200AH for End Goomty**DETAILS OF TOOLS IN TOOLKIT WITH IPS**

Note:- Every IPS shall be supplied along with tool kit and shall be placed inside the IPS rack in a suitable Bag/Box.

SN	Description of Tools	Size	Make	Quantity
1	Double ended spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
2	Box spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
3	Screw driver set (05 pieces)	6"	Taparia	01 set
4	Screw driver small aligner	--	Taparia	01
5	Screw driver big	12"	Taparia	01
6	Cutting plier	6"	Taparia	01
7	Nose plier	6"	Taparia	01
8	Plier	6"	Taparia	01
9	Adjustable Torque wrench	-	Taparia	01

IPS 200AH for End Goomty

LIST OF SPARES TO BE SUPPLIED WITH IPS	
1	FRBC MODULE (as cold stand by)
2	Invertor Module as cold stand by
3	DC-DC Converter Module
i	24-32/10A
ii	24-40/10A
iii	12-28/10A
iv	12-28/1A
4	Automatic Voltage Regulator (AVR)
5	Fuses . All types of fuses used in IPS subsystem
6	Transformer as cold standby
7	Fan. Used for INV/SMR/AC-AC conv
8	Cella LMLA 2V/200AH

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IPS 200AH for End Goomty

IPS 2023			Warranty 4 Years from Commissioning		
			Indication	PF Contact	
SPD Box	Line-Neutral	B Type I	YES	YES	Spark Gap Type
	Line-Neutral	C Type II	YES	YES	Thermal Disconnecting Type
	Neutral-Earth	B Type I	YES	YES	Spark Gap Type
External Circuits		C Type II	YES	Yes	Thermal Disconnecting Type
					for >24V, >10W AC/DC supplies at the output side inside the rack of IPS. These shall be provided for External circuits i.e. Relay external circuit, Aale counter circuit, point machine circuit, AC-AC converters, inverter output and output of any other modules which are directly connected to external circuits.
Note: B&C Shall be from same OEM					

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IPS for 200AH for ABS-IB-IC			
INFORMATION BY INDENTOR			
SN	Item	To be Filled IN	External Circuits to be provided with SPD as per specs
1	SMPS based integrated power supply system (IPS) suitable for signalling	YES	
2	Total number of SMPS based integrated power supply system (IPS) required	1	
3	RE area/ Non-RE area	RE AREA ONLY	
4	Type of Battery (Low Maintenance or VRLA or any other cells approved by LMA)	LMA	
5	Capacity of Battery (120AH / 200AH / 300AH)	200	
6	Requirement of Battery Rack - If yes type of Battery racks (MS) for VRLA	NOT REQUIRED	
7	Distance between IPS Room & status Monitoring Panel installation Place. (in meters) (vendor will provide cable up to 100 mtr with each IPS)		This cable is not required. Railway R lay 12x1.3 Sgg Cable
8	Distance between IPS rack & Battery. (in meters)	100 Meters	
9	SMPS Charger FRBC Module (N+1)	3+1=4	
10	Required Load in KVA for Track circuit/LC Gate (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note- N is no of modules required based on load calculation of Track circuit. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
11	Required Load in KVA for Signal lighting/ELD (a) 500 VA X N (b) 1.0 KVA X N (c) 1.5 KVA X N Note- N is no of modules required based on load calculation of Signal lighting. Purchaser should choose only one option out of the three options (a) or (b) or (c).	500 VA X 4	External
12	Details of DC-DC converters Note: Purchaser should write Nil, if particular modules are not required. Number of modules shall be chosen considering total system load up to 15 kva.		
STANDARD DC-DC MODULES			
	Module	Rating	No of Modules
i	Relay Internal (n+2)	24-32V/10 A for H to C Relay	3
ii	Relay External (n+1)	24-32V/ 10 A for H to C Relay	4
iii	Axle Counter (n+1)	24-40V/ 10 A	4
iv	HKT & Magneto (n+1)	12-28V/01 A	2
v	Block Tele (n+1)	03-06 V/0.1 A	0
vi	Data Logger (n+1) 02 Numbers (Mandatory)	24-32V/10A	2
vii	Spare Cell (n+1) 03 Numbers (Mandatory)	2-12/5A	3
viii	Panel Indications	12-38V/10 A	2
ix	APUAS	24-32V/10A	2
x	ADPHS	24-32V/10A	3
xi	FUTURE SLOTS (SP)	24-40V/ 10 A	2
xii	Electric Lifting Barrier (n+1)	24V-32V/10A	2
xiii	MSDAC Reset Box Main/Dual (n+1)	24V-32V/10A	2
xiv	MSDAC Cabinet Fan/Light (n+1)	24V-32V/10A	2
	Total Module Required in DC-DC Converter Section		32
13	110 DC Terminations		
i	EI ROOM MAIN	Fuse 10 A	
ii	EI ROOM STANDBY	Fuse 10 A	
iii	Maintainer Room Main	Fuse - 6 A	
iv	Maintainer Room Standby	Fuse - 6 A	
v	ELB 110 VDC Hand Generator Type	Fuse - 10 A	External
vi	Spare 1	Fuse - 12 A	
vii	Spare 2	Fuse - 20 A	
14	Provision of Remote test unit/ test device along with sensors for Remote monitoring of Voltage and current of IPS modules	NO	
15	Integration of Remote Test unit with existing ROPMS system.	YES	
16	Requirement of Extended Warranty Period (Numbers of years)	NO	As per specs only i.e. 4 years from Date of Commissioning

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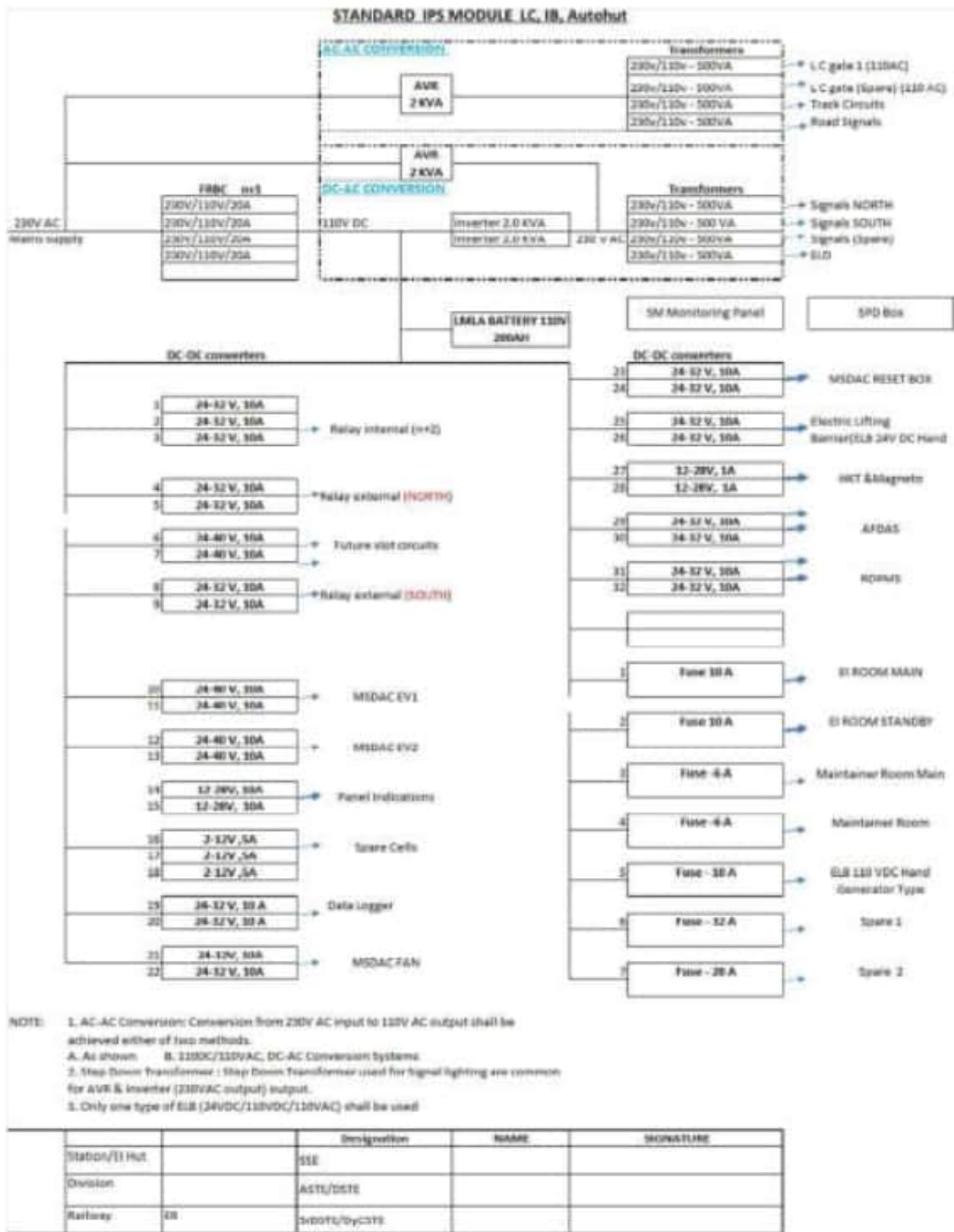
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IPS 200 AH for ABS-IB-LC**DETAILS OF TOOLS IN TOOLKIT WITH IPS**

Note:- Every IPS shall be supplied along with tool kit and shall be placed inside the IPS rack in a suitable Bag/Box.

SN	Description of Tools	Size	Make	Quantity
1	Double ended spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
2	Box spanner	6-7, 8-9, 10-11 & 12-13	Taparia	01 each
3	Screw driver set (05 pieces)	6"	Taparia	01 set
4	Screw driver small aligner	--	Taparia	01
5	Screw driver big	12"	Taparia	01
6	Cutting plier	6"	Taparia	01
7	Nose plier	6"	Taparia	01
8	Plier	6"	Taparia	01
9	Adjustable Torque wrench	-	Taparia	01

IPS 200 AH for ABS-IB-LC

<u>LIST OF SPARES TO BE SUPPLIED WITH IPS</u>	
1	FRBC MODULE (as cold stand by)
2	Invertor Module as cold stand by
3	DC-DC Converter Module
i	24-32/10A
ii	24-40/10A
iii	12-28/10A
iv	12-28/1A
4	Automatic Voltage Regulator (AVR)
5	Fuses . All types of fuses used in IPS subsystem
6	Transformer as cold standby
7	Fan. Used for INV/SMR/AC-AC conv
8	Cella LMLA 2V/200AH

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IPS 200 AH for ABS-IB-LC

	IPS 2023				Warranty 4 Years from Commissioning
			Indication	PF Contact	
SPD Box	Line-Neutral	B Type I	YES	YES	Spark Gap Type
	Line-Neutral	C Type II	YES	YES	Thermal Disconnecting Type
	Neutral-Earth	B Type I	YES	YES	Spark Gap Type
External Circuits		C Type II	YES	Yes	Thermal Disconnecting Type
					for 24V-110V AC/DC supplies at the output side inside the rack of IPS. These shall be provided for External circuits i.e. Relay external circuit, Axle counter circuit, point machine circuit, AC-AC converters, Inverter output and output of any other modules which are directly connected to external circuits.
Note: B&C Shall be from same OEM					

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CHAPTER - 6 :
Point machine and associated items.

SN.	Description	Unit	Rate
0601	Supply of FRP type vertical point Junction Box as per drawing No. SI./TYP/102 issued by ER on 04.08.25. Inspection: RITES/Consignee.	No.	8,281.00
0602	Supply of Ground Connection [BG] Threaded Type for IRS type Point Machine, as per CWM/Signal Workshop/Howrah/E.Rly drawing number, SL. No., Description of Drawing & CWM/SW/HWH's Drawing No. mentioned below :- 1. Detector Rod (Far End) - BS/29/721 with ALT-1 Detector Rod (Near End)- BS/29/722 with ALT-1. 2. Lock Rod (Far End) - BS/29/723 with ALT-1, Lock Rod (Near End) - BS/29/724 with ALT-1. 3. Switch Extension Bracket - BS/29/725 with ALT-1. 4. Drive Rod - BS/29/726 with ALT-1 Drive Lug- BS/29/726 A with ALT-1. 5. Sleeve - BS/29/726 B with ALT-1. 6. Lug- BS/29/726 C with ALT-1. 7. Pin- BS/29/726 D with ALT-1. 8. Sketch showing the Layout arrangement-BS/29/727 with ALT-1. Amdt. and alt. upto date if any. Inspection: RITES/Consignee.		
0603	For Turn Out.	Set.	7,339.00
0604	For Trap.	Set.	6,283.00
0605	For Double Slip as per DRG No. SGW/S/2/HWH/1/92 or Latest.	Set.	16,527.00
0606	For Single Slip as per DRG No. S-3153 or Latest.	Set.	8,750.00
0607	Supply of complete set of ground connections for high thrust 220 mm. stroke point machine along with insulation as per Drg. No. RDSO/33454 Alt.B dt.25-01-2023 or latest along with insulation. Inspection: RITES/Consignee.	Set.	47,051.00
0608	Supply of Electric Point machine IRS type 220 mm throw, high thrust (AC immunity 160V AC), non-trailable to operate on 110V, DC complete with Lock and Detector slides, and clamp lock 60 Kg. confirming to IRS:S 24/2002 & Assy. Drg. No. RDSO-S/11000 & For Motor IRS:S-37/82. Inspection: RDSO.	No.	1,29,961.00

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0609	Supply of Electric Point Machine-IRS type , (AC Immunity 160V AC), Non-Trailable to operate on 110V DC complete with Lock and Detector slides, (143mm throw , thrust as applicable, Rotary locking), confirming to IRS:S-24/2002 (Amdt.1) (Amdt. upto date if any) & Assy. Drg. No. RDSO-S10910 (Alt. upto date if any) & IRS:S 37/82 (Amdt.3) (Amdt. upto date if any) for Motor. Inspection: RDSO.	No.	74,898.00
0610	Installation of electric point machines on MS plate fixed on wooden/ concrete sleepers complete with fixing of ground connections including smithy works involved, insulation of MS plate on which the point machine is to be fixed from the gauge tie plate involving riveting/welding of angle cleats, termination adjustment for operation of points by crank handle, painting and lettering as required including wiring, testing and commissioning. Note: <u>MS plate/flat/angle /angle cleats, paints, bolts & nuts and washers of sizes as required for fixing the point machine shall be supplied by the contractor except point machine and ground connections.</u>	No.	13,119.00
0611	Point insulation Complete set as per RDSO/SPN/168/2005 for 1. Switch 'D' bracket insulation for IRS point machine - One set comprises Side plate LH to Drg. No. S-3266 - 1 No. (b) Side plate RH to Drg. No. S-3265 - 1 No. (c) Insulating bush to Drg. No. S-3199 - 4 Nos. (d) Insulating washer to Drg. No. S-8640 - 4 Nos. 2.Split-Stretcher bar 2.1 Insulation for Leading stretcher bars (BG). Each set comprising of (a) Insulating plate for leading insulated stretcher bars BG as per RDSO Drg. No. T-10384 – 2 Nos. (b) Insulating bushing for leading insulated stretcher bars for BG as per RDSO Drg. No. T-10535- 4 Nos. (c) Insulating Washer for insulated stretcher bar BG as per RDSO Drg. No. T-10371 – 6 Nos. 2.2 Insulation for following stretcher bars BG. Each set comprising of: (a) Insulating side plate for insulated stretcher bars BG as per RDSO Drg. No. T-10367 – 3 Nos. (b) Insulating bushing for insulated stretcher bars BG as per RDSO Drg. No. T-10368 – 6 Nos. (c) Insulating washer for insulated stretcher bars BG as per	Set.	1,553.00

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	<p>RDSO Drg. No .T10371–12 Nos. & 3. Gauge tie plates (52 Kg/60Kg as per site requirement) Insulation for (BG) complete with insulating bush and washer each set comprising of: (a) Insulating plate for insulated tie plate BG as per RDSO Drg. No. T-10372-1 No. (b) Insulating bushing for insulated stretcher bar BG as per RDSO Drg .No. T10368–3 Nos. (c) Insulating Washer for insulated stretcher bar BG to IRS 40/84 as per RDSO Drg. No. T-10371 – 6 Nos. Inspection: RITES/Consignee.</p>		
0612	<p>Gauge Tie plate insulation as per RDSO/SPN/168/2005 as per RDSO Drg. No. T-10372 Alt.2, T-10368, T-10371 Alt.2, T-15083/88 Alt.2 & T-11690 Alt.2 and as per RDSO/SPN/168/2005 with latest amendments as applicable. Gauge tie plates (52Kg/60Kg as per site requirement) Insulation for (BG) complete with insulating bush and washer. Each set comprising of: (a) Insulating plate for insulated tie plate BG as per RDSO Drg. No. T-10372 - 1 No. (b) Insulating bushing for insulated stretcher bar BG as per RDSO Drg. No. T10368 – 3 Nos. (c) Insulating Washer for insulated stretcher bar BG to IRS-40/84 as per RDSO Drg. No. T-10371 – 6 Nos. Inspection: RITES/Consignee.</p>	Set.	460.00
0613	<p>Ground connection insulations for thick web switch layout facing point (BG) for 52kg/60kg rail fitted with high thrust (220mm) point machine comprising of the following: Set 1. Bush as per Drg. No.S-3463 - 1 no. and Washer as per DRG. No. S-58640 – 2 no. for drive (throw) rod 2. Bush as per Drg. No.S-23199 - 1 no. and Washer as per Drg. No.S-8640 – 2 nos. for a short detector rod. 3. Bush as per Drg. No. S-3199 - 1 no. and Washer as per Drg. No. S-8640 – 2 nos. for a long detector rod. 4. Bush as per Drg. No. S-22179 - 1 no. and Washer as per Drg. No. S-8640 - 2 nos. for short lock rod. 5. Bush as per Drg. No. S-22179 - 1 no. and Washer as per Drg. No. S-8640 - 2 no. for long lock rod. 6. Bush 'B' as per Drg. No. S-8912 for LH lock slide - 1 no. 7. Bush 'B' as per Drg. No. S-8912 for LH lock arm - 2 nos. 8. Bush 'B' as per Drg. No. S-8912 for RH lock arm - 2 nos.</p>	Set.	1,064.00

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	<p>9. Bush 'B' as per Drg. No. S-8912 for RH lock slide - 1 no.</p> <p>10. Bush as per Drg. No. S-23199 - 4 nos. and washer as per Drg. No. S-8640 - 4 nos. for the LH lock slide.</p> <p>11. Insulating Plate LH as per Drg. No. S-3404 RDSO S-3593 - 1 No.</p> <p>12. Insulating Plate RH as per Drg. No. S-3404 RDSO S-3592 - 1 No.</p> <p>13. Bush as per Drg. No. S-23199 - 4 nos. and washer as per Drg. No. S-8640 - 4 nos. for RH lock slide.</p> <p>Inspection: RITES/Consignee.</p>		
0614	<p>Dismantling and releasing of existing Point machines (all types) including ground connections and other accessories available complete without any damage to the gadgets, accounting and stacking them neatly at a place as instructed by Railway representative at site.</p>	No.	2,023.00
0615	<p>Supply of Siding Point Control with HP Lock, Electrical detector etc. as per IRS Spec. Electrical detector should be as per IRS S-49/74. Complete material for the above work will be supplied by the contractor.</p> <p>Inspection: RITES/Consignee.</p>	Set.	33,993.00
0616	<p>Installation, Testing & Commissioning of Siding Point Control with HP Lock, Electrical detector etc. as per IRS Spec. Electrical detector should be as per IRS:S-49/74. This also includes erection of foundation and supply of A type foundation etc. as per Drg. No. SA- 3529/M.</p> <p>Inspection: Consignee.</p>	Set.	8,498.00
0617	<p>Supply of William Stretcher Insulation Set (complete) as per RDSO/SPN/168/2005 with insulating bush and washer to suit point layout and conforming to RDSO Drg. No. T-10372 or latest, T-10368 or latest and T-10371 or latest.</p> <p>1.1 Insulation for Leading stretcher bars (BG) each set comprising of</p> <p>(a) Insulating plate for leading insulated stretcher bars BG as per RDSO Drg. No. T-10384 - 2 Nos.</p> <p>(b) Insulating bushing for leading insulated stretcher bars for BG as per RDSO Drg. No. T-10535 - 4 Nos.</p> <p>(c) Insulating Washer for insulated stretcher bar BG as per RDSO Drg. No. T-10371 - 6 Nos.</p> <p>1.2 Insulation for following stretcher bars BG. Each set comprising of:</p>	Set.	213.00

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	(a) Insulating side plate for insulated stretcher bars BG as per RDSO Drg. No. T-10367 – 3 Nos. (b) Insulating bushing for insulated stretcher bars BG as per RDSO Drg. No. T-10368 – 6 Nos. (c) Insulating washer for insulated stretcher bars BG as per RDSO Drg. No. T-10371 – 12 Nos. Inspection: RITES/Consignee.		
0618	Supply of 110V DC motor with 400V AC immunity as per Specification No. IRS:S-37/82 or Latest. Inspection: RDSO.	No.	21,821.00
0619	Supply of GI bend pipe, 'B' class, 50 mm. dia., length 450 mm. for cable entry in point machines, along with required fixing arrangements as per standard practice on Eastern Railway. Inspection: Consignee.	No.	3,294.00
0620	Dismantling of point rodding including top roller, bottom roller, roller guide, trestle etc.	Mtr.	17.00
0621	Painting of two coats of Enamel paint over one coat of Red Oxide primer after scrapping and cleaning of the surface. Paint to be of reputed make Asian/Dulux/Berger or similar. (Point machine and ground connections, Point machine by Black enamel and ground connection by Red oxide)	No.	293.00
0622	Supply of Electrical Point Detector and Lock as per specification IRS:549-74 or latest with cross protection arrangements. Inspection: RDSO.	No.	23,501.00
0623	Supply of Split Stretcher Bars for Hand Plunger Lock as per DRG. No. SA 3164/M or latest for BG. Inspection: RITES/CONSIGNEE	Set.	3,785.00
0624	Supply of Hand plunger lock 2 way complete. Inspection- Consignee.	No.	4,590.00
0625	Supply of ground connections for Electrical detector consisting of one long detector rod, one short detector & one lock detector rod. Inspection: RITES/CONSIGNEE	No.	4,758.00
0626	Fabrication of Keys and Plate configuration for points. Inspection: RITES/Consignee		
	a) Supply of key for point machine for grouping of crank handle.	No.	316.00
	b) Fabrication and supply of required configuration of grouping plate in point machine for grouping of crank handle.	No.	558.00

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CHAPTER - 7 :
Track Circuit equipments

SN.	Description	Unit	Rate
0701	Supply of Track feed Battery Charger as per RDSO Spec. No. IRS: S-89/2013 Ver.1.0 or latest. Charging Capacity Rating 10 Amps for Charging 80 AH Battery. Inspection: RDSO.	No.	5,725.00
0702	Supply of Adjustable Track Feed Resistance 30 Ohms (Disc Type) as per RDSO Drg. No. SA-20161-66/M or latest. To be procured from RDSO Approved sources. Inspection: RDSO.	No.	200.00
0703	Supply of Track Lead Junction Box (TLJB) made from FRP material including brass bolts and hylam board sheet with 4 terminals as per ER drawing no- SI/TYP/0096 & ER Technical circular policy no-118 (Modified). Inspection: RITES/CONSIGNEE.	No.	4,507.00
	<p>The technical specifications are as follows:</p> <p>(a) TLJB complete with cover to be in black/red having approximate weight of 4.0 Kg. with L-262 mm. W-212 mm. and H-90 mm. and all the holes required for mounting on FRP stump (vertical two for each FRP angle) HDPE pipe , cable etc.</p> <p>(b) Each TLJB shall have two bakelite terminal block fitted horizontally: each bakelite terminal block shall have two nickel chrome plate M10 brass terminal, 50 mm. long. Along with each TLJB, nickel chrome plated brass links (two nos. of adequate strength for vertical linking of the terminals to be supplied.</p> <p>(c) HDPE pipe of size 32/35 mm., 380 mm. long, along with two nuts for fixing on the TLJB hole .</p> <p>(d) The FRP stump for mounting the TLJB to be made of one meter long 30 mm. X 30 mm. X 4 mm. angle (2 nos.) and 300 mm. long 30 mm. X 30 mm. X 4 mm. angle (1 no.) fixed at 50 mm. from the bottom using galvanised nuts and bolts. The TLJB and the angles for stump should come along with holes on them for fixing using galvanised nuts and bolts of adequate strength to be supplied along with TLJB.</p> <p>Inspection: RITES/CONSIGNEE</p>		

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0704	Supply of B Type Choke as per RDSO Spec. No. IRS:S-65/83 (Amnd.1) or latest. Inspection: RDSO.	No.	6,026.00
0705	Supply of Channel Pins MS (Galvanized) single groove, 7 mm. suitable for 4 mm. dia. bonding wire as per Spec. No. IRS S-17 & RDSO Drg. No. S-69/M. Inspection: Consignee.	No.	5.00
0706	Supply of GI wire 8 SWG (4 mm. dia.) suitable for track circuit rail bonding. Inspection: Consignee.	Mtr.	8.00
0707	Supply of Rail joint insulation thermoplastic polyurethane moulded 52 kg rail complete to SA-22101(Alt-6) with latest alteration and to suit specification no. RDSO/SPN/168/2005 Rev.2 with Amdt. up to date if any (without metal parts). Firm's offer: item description: IRJ TPU 52 KGS as per Drg. No. SA-22101 consisting (1) Channel, Drg. No. S- 2213 - 4 Nos. (2) End post, Drg. No. S-22105 - 1 No. (3) Ins. Plate, Drg. No. S-22106 - 4 Nos. (4) Ins. Bush, Drg. No. S-22109 - 8 Nos. & Spec. No. RDSO/SPN/168/2005. Inspection RITES/CONSIGNEE	Set.	757.00
0708	Supply of Rail joint insulation thermoplastic polyurethane moulded 60 kg Rail complete to Drg. no. SA-22171 (Alt.-2) (with latest alteration if any) and as per Specification No. RDSO/SPN/168/2005, Rev.2, with Amdt. up to date if any (Without metal parts). Firm's Offer: Item description: (1) Channel, Drg. No. S-22173 - 4 Nos. (2) End Post, Drg No. S-22175 - 1 No. (3) Ins. Plate, Drg. No. S-22176 - 4 Nos. (4) Ins Bush, Drg. No. S-22179 – 8 Nos. & Spec. No. RDSO/SPN/168/2005. Inspection: RITES/CONSIGNEE.	Set.	825.00
0709	"SUPPLY OF POLYMER POSITIVE TEMPERATURE COEFFICIENT DEVICE (PPTC) Resettable Fuses, for outdoor circuits. 30V/2.5A for track feed and 60V/1.1A in place of 24V/2A fuse and 120V/1.1A for signal lighting. Make- RAYCHEM, BOURNS, LITTLE FUSE, FUZETEC or TYCO. Quantity as per site engineer. Note- PPTC fuses are to be connected with crimped ring type lugs. ". Inspection: RITES/Consignee.	No.	100.00

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0710	Installation wiring, testing and commissioning of DC track circuit as per approved track circuiting plan. The work includes fixing of track bonding (double) with 8 SWG soft GI wire, rail connector with GI wire and fixing with bond pin with galvanised iron wire, track jumpers (double) with signalling cable. It also includes installation and wiring of track feed chargers, track relays, track circuit equipment's in the location box, including drilling of 9/32" hole on rails where required. Erection, fitting of Track Lead Junction Box on two supports. The work shall be done as per instructions of Rly engineer at site. GI wire, bond pin, TLJB, Track relay, Track resistance, Track feed charger, Choke, wire coil, fuses, terminal, signaling cable will be supplied by Railways.	Per Track Ckt.	4,090.00
0711	Provision/Installation of bonding with GI wire 4 mm. dia. (8 SWG)/wire rope for track jumper & fish plate joints bonds. This will include drilling of 7.0/7.1/7.2 mm. dia. holes in rails (4 Nos.) and provision of two jumpers for each bond, clipping of bonds etc. with contractors own tools as per instruction of Rly. Engineer at site. Note- This item is already covered in above item no 0710 however; this item should be used for isolation/maintenance purpose only.	No.	205.00
0712	Releasing of existing TLJB and its accessories.	No.	943.00
0713	Supply of Galvanised Wire rope 6/19 steel, 6 mm. dia. with fiber core as per specification IS 3459/2004 or latest. Inspection: RITES/Consignee.	Mtr.	79.00
0714	Supply of Porcelain insulators for secondary lead acid cells. Inspection: RITES/Consignee.	No.	30.00

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Technical Policy Circular No: 118 (Modified)

Sub: Use of FRP based TLJB instead of Metal TLJB.

Ref: Technical Policy Circular No: 118 issued on 08.08.2024

In continuation with Technical Circular No: 118, it has been decided that FRP-based TLJBs should be used as per typical drawing issued in all new installations in Eastern Railway. A typical Drawing No. **SI/TYP/0096** for FRP based TLJB ARA type is also attached.

This issue has the approval of PCSTE/ER.

D.A: As above.

Docket No:- SG/219/4/0

Dated:-29.11.2024

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(U.P. Singh)
Chief Signal Engineer/ER

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(ii) Dy. CSTE/Tele/ER, Dy. CSTE/HQ/ER, Dy.CSTE/W/D&D/HQ, Dy. CPM/GSU/ SDAH, Dy. CSTE/W/HWH, SDAH, ASN & MLDT- for kind information please.

(iii) Sr. D.S.T.E/HWH, SDAH, ASN, MLDT- for kind information please.

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Chief Signal Engineer/ER

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Technical Policy Circular No: 118

Sub: Use of FRP based TLJB instead of Metal TLJB.

On Eastern Railway, metal TLJBs are currently being used for providing track circuit jumper connections on rails. However, this arrangement has some shortcomings, such as the potential for short circuits between the TLJB/TLJB cover and the terminals inside the TLJB.

Therefore, it has been decided that FRP-based TLJBs should be used instead of metal TLJBs. The internal terminals of these TLJBs can be ARA, Wago, etc. Henceforth, only FRP-based TLJBs should be used in all new installations on Eastern Railway.

This is issued with the approval of PCSTE/ER.

Docket No: - SG/219/4/0

Dated:-08.08.2024

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(U.P. Singh)
Chief Signal Engineer-II/ER

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- (iii) Sr.D.S.T.E/HWH, SDAH, ASN, MLDT

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Chief Signal Engineer-II/ER

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CHAPTER - 8 :**LED Main & Subsidiary signals, CLS units, Route Indicators & foundation etc.**

SN.	Description	Unit	Rate
0801	Supply of LED signal lamps for Main color light Signal RED Aspect , 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. No. RDSO/SPN/199/2025 Revision.1.2 with Amendment - 1 or latest. Inspection: RDSO.	No.	9,238.00
0802	Supply of LED signal lamps for Main color light Signal YELLOW Aspect , 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. No. RDSO/SPN/199/2025 Revision.1.2 with Amendment - 1 or latest. Inspection: RDSO.	No.	9,454.00
0803	Supply of LED signal lamps for Main color light Signal GREEN Aspect , 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. RDSO/SPN/199/2025 Revision.1.2 with Amendment - 1 or latest. Inspection: RDSO.	No.	10,414.00
0804	Supply of LED signals for Route Aspect (Subsidiary Signal), 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. No. RDSO/SPN/153/2023 Revision.5.0 or latest. Inspection: RDSO.	No.	5,864.00
0805	Supply of LED signals for Shunt Signal Aspect (Subsidiary Signal), 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. No. RDSO/SPN/153/2023 Revision.5.0 or latest. Inspection: RDSO.	No.	6,425.00
0806	Supply of LED signals for Calling ON Signal Aspect (Subsidiary Signal), 110V AC retrofittable in existing CLS housing and compatible with AC LED ECR as per RDSO Spec. No. RDSO/SPN/153/2023 Revision.5.0 or latest. Inspection: RDSO.	No.	7,693.00

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0807	Supply of "A" marker LED (White Color) signal lighting unit retrofittable in existing CLS housing and compatible with AC LED ECR,(as per Spec. No. RDSO/SPN/153/2023 Rev 5.0 or latest). Inspection: RDSO.	No.	5,018.00
0808	Supply of "AG" marker LED (White Color) signal lighting unit retrofittable in existing CLS housing and compatible with AC LED ECR, (as per Spec. No. RDSO/SPN/153/2023 Rev.5.0 or latest). Inspection: RDSO.	No.	5,065.00
0809	Supply of color light signal post 5.5 mtr. as per RDSO SPEC. NO. IRS:S-6-81 (or latest) and Drg. No. SA-23156 (ADV), Alt-1 or latest. Materials to be procured only from RDSO approved list of firms for manufacture & supply of mechanical signaling items. Inspection: RITES/Consignee.	No.	13,879.00
0810	Supply of color light signal post 4.5 mtr. as per RDSO Spec. No. IRS:S-6-81 (or latest) and Drg. No. SA-23156 (Adv.), Alt-1 (or latest). Materials to be procured only from RDSO approved list of firms for manufacture & supply of mechanical signaling items. Inspection: RITES/Consignee.	No.	11,357.00
0811	Supply of color light signal post 3.5 mtr. as per RDSO Spec. No. IRS:S-6-81 (or latest) and Drg. No. SA-23156 (Adv.), Alt-1 (or latest). Materials to be procured only from RDSO approved list of firms for manufacture & supply of mechanical signaling items. Inspection: RITES/Consignee..	No.	8,832.00
0812	Supply of 140 mm diameter Cast Iron (Grade-20) Signal base as per Drawing No. S-2011/M and as per Specification No. IRS:S-10/78 & IS:210 or latest. Inspection: RITES/Consignee.	No.	6,320.00
0813	Supply of 5.5 meter Ladder for Color Light Signal as per RDSO Drawing No. SA-23156 (Adv.) or latest and Stage with Ladder as per Drawing No. S-2033/M (IRS) or latest & as per Specification No. IRS:S-10/78 & IS:210 or latest. Inspection: RITES/Consignee.	No.	12,144.00
0814	Supply of 4.5 meter Ladder for Color Light Signal as per RDSO Drawing No. SA-23153 (Adv.) or latest and Stage with Ladder as per Drawing No. S-2033/M (IRS) or latest & as per Specification No. IRS:S-10/78 & IS:210 or latest. Inspection: RITES/Consignee.	No.	9,936.00

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0815	Supply of 3.5 meter Ladder for Color Light Signal as per RDSO Drawing No. SA-23150 (Adv.) or latest and Stage with Ladder as per Drawing No. S-2033/M (IRS) or latest & as per Specification No. IRS:S-10/78 & IS:210 or latest. Inspection: RITES/Consignee.	No.	7,728.00
0816	Supply of Metallic (MS) color light Signal Unit 2 aspect complete as per DRG. No. SA-23003/AIM (Adv.) with latest amendment and specification IRS:S-26/64 or latest. Inspection: RITES/Consignee.	No.	14,715.00
0817	Supply of Metallic (MS) color light Signal Unit 3 aspect complete as per DRG. No. SA-23002/AIM (Adv.) with latest amendment and specification IRS:S-26/64 or latest. Inspection: RITES/Consignee.	No.	18,095.00
0818	Supply of Metallic (MS) color light Signal Unit 4 aspect complete as per Drg. No. SA-23001/NM (Adv.) with latest amendment and specification IRS:S-26/64 or latest Inspection: RITES/Consignee.	No.	19,894.00
0819	Supply of FRP type color light signal unit 2 aspect complete as per Drg. No. SA-23003/AIM with latest amendments and as per RDSO Spec. no. RDSO/SPN/194/2006 Rev. 2.0 or latest. Inspection: RITES/Consignee.	No.	32,374.00
0820	Supply of FRP type color light signal unit 3 aspect complete as per Drg. No. SA-23002/AIM with Latest amendment and as per RDSO Spec. no. RDSO/SPN/194/2006 Rev. 2.0 or latest. Inspection: RITES/Consignee.	No.	34,896.00
0821	Supply of FRP type color light signal unit 4 aspect complete as per Drg. No. SA 23001/NM with Latest amendments and as per RDSO Spec. no. RDSO/SPN/194/2006 Rev.2.0 or latest. Inspection: RITES/Consignee.	No.	39,446.00
0822	Supply of cast iron offset bracket for Main Signal with U clamps , nuts, washers complete Drg. No. SA-23080/ADV/Alt-1. RDSO Spec. No. IRS-S-10/78. Inspection: RITES/Consignee.	No.	3,168.00
0823	Supply of Offset Bracket to suit 140mm dia CLS post with two numbers of U bolts and nuts complete. Inspection: RITES/Consignee.	No.	4,892.00

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0824	Casting, concreting & curing of foundation for Main signal including cost of all materials required for casting and concreting. All materials required for execution will be supplied by the contractor including cement, sand & stone chips, Foundation Bolts, PVC Pipe, shuttering etc. as per Drg. No. S&T/C-42(NKG).	No.	10,166.00
0825	Erection of surface base, signal post, mounting of Color Light Signal up to 4 aspects complete on signal post, offset bracket, LED fixing, plumbing of the signal through sealing gap between Surface base and signal post, fixing of ladder with platform complete and concreting of ladder shoe, fixing of number plates, marker board, termination tail cables, wiring of signal unit, fixing of EWS locks, and painting of one coat of red oxide and two coats of aluminium/enamel paints , black paint on post, ladder, Platform, ladder shoe as per practice. When the aspect is fixed on an offset bracket using 'U' bolts and nuts, a through bolt shall be provided by drilling a hole in the signal pole to prevent the offset bracket from sliding down. Painting of Signal unit with two coats of white inside and Black outside (Supply of surface base, offset bracket, CLS pole, CLS aspects complete, ladder with shoes and platform, LED aspects, and wire coils will be supplied by Railways). (through bolts and nuts, cement, stone jelly 20/25mm dia. river sand, Signal Color Rings, all fixing bolts and nuts, teak wood, paints PVC/Nylon sleeves and all other miscellaneous materials for the work shall be supplied by the contractor)	No.	13,314.00
0826	Supply of Metallic 1 way Junction route indicator unit Without Lenses & Holder as per Drg. No. RDSO SA- 23401 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amdt.1 or latest. Inspection: RITES/Consignee.	No.	17,635.00
0827	Supply of Metallic 2 way Junction route indicator unit Without Lenses & Holder as per Drg. No. RDSO SA 23402 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amndt.1 or latest. Inspection: RITES/Consignee.	No.	20,895.00
0828	Supply of Metallic 3 ways Junction route indicator unit Without Lenses & Holder as per Drg. No. RDSO SA 23403 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amndt.1 or latest. Inspection: RITES/Consignee.	No.	24,177.00

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0829	Supply of metallic 4 way Junction route indicator unit Without Lenses & Holder as per Drg. No. RDSO SA- 23404 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amdt.1 or latest. Inspection: RITES/Consignee.	No.	27,177.00
0830	Supply of metallic 5 way Junction type/Direction type route indicator as per Drg. No. SA-23405 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amndt.1 or latest. Inspection: RITES/Consignee.	No.	30,386.00
0831	Supply of metallic 6 way Junction type/Direction type route indicator as per Drg. No. SA-23406 or latest suitable for LED Signal Lighting Unit as per IRS:S-66/84 Amdt.1 or latest. Inspection: RITES/Consignee.	No.	33,989.00
0832	Supply of 1 WAY FRP TYPE JUNCTION ROUTE INDICATOR as per RDSO Drg. No. SA-23401(Adv.)/ (Alt.2). Inspection: RITES/Consignee.	No.	33,597.00
0833	Supply of 2 WAY FRP TYPE JUNCTION ROUTE INDICATOR as per RDSO Drg. No. SA-23402(Adv.)/ (Alt.2). Inspection: RITES/Consignee.	No.	42,260.00
0834	Supply of 3 WAY FRP TYPE JUNCTION ROUTE INDICATOR as per RDSO Drg. No. SA-23403(Adv.)/ (Alt.2). Inspection: RITES/Consignee.	No.	41,297.00
0835	Fixing of junction type route indicator - 1 way - complete / fixing of additional limb to the existing route indicators, termination of tail cables, wiring, fixing of required number of EWS locks, wire mesh and painting. [Fixing bolts and nuts, wire mesh, PVC / Nylon sleeves, paints and all other miscellaneous materials shall be supplied by the contractor].	No.	2,136.00
0836	Fixing of junction type route indicator - 2 way - complete / fixing of additional limb to the existing route indicators, termination of tail cables, wiring, fixing of required number of EWS locks, wire mesh and painting. [Fixing bolts and nuts, wire mesh, PVC / Nylon sleeves, paints and all other miscellaneous materials shall be supplied by the contractor].	No.	2,530.00
0837	Fixing of junction type route indicator - 3 way - complete / fixing of additional limb to the existing route indicators, termination of tail cables, wiring, fixing of required number of EWS locks, wire mesh and painting. [Fixing bolts and nuts, wire mesh, PVC / Nylon sleeves, paints and all other miscellaneous materials shall be supplied by the contractor].	No.	2,923.00

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0838	Fixing of junction type route indicator - 4 way - complete / fixing of additional limb to the existing route indicators, termination of tail cables, wiring, fixing of required number of EWS locks, wire mesh and painting. [Fixing bolts and nuts, wire mesh, PVC / Nylon sleeves, paints and all other miscellaneous materials shall be supplied by the contractor].	No.	4,414.00
0839	Fixing of junction type route indicator - 5/6 way - complete / fixing of additional limb to the existing route indicators, termination of tail cables, wiring, fixing of required number of EWS locks, wire mesh and painting. [Fixing bolts and nuts, wire mesh, PVC / Nylon sleeves, paints and all other miscellaneous materials shall be supplied by the contractor].	No.	5,104.00
0840	Supply of AC LED alpha or numeric route indicator for 1-19 / A-R routes with complete housing with white LED as per specification IRS : S 66/84 Amdt.1 or latest and Drg. No. SA 23761(Adv.) or Latest. Lamp proving compatible with normal bulb type multi lamp route indicators. Input operating voltage 110V AC +/- 25%. Uniform intensity over the entire operating range. Inspection: RITES/Consignee.	No.	53,145.00
0841	Installation, testing and commissioning of AC LED alpha or numeric route indicator with complete housing including necessary wiring connection with the main signal and dismantling of existing route indicator wherever required. Necessary signalling cable if required will be supplied by the Railway.	No.	27,297.00
0842	Supply of Stencil type route indicator 2 way as per RDSO Drg. No. SA-21281 and Spec. No. IRS-S-66/84 Amdt-1 or Latest. Inspection: RITES/Consignee.	No.	13,445.00
0843	Installation, erection of stencil type route indicator 2 way. and paying out of Tail cable and wiring	No.	353.00
0844	Supply of dependent/position light type Shunt Signal complete as per Drawing No. SA-23840(Adv.) Alt.2 or latest, S-23023 or latest with offset bracket to Drg. No. SA23080 Adv. Alt. 1 or latest to suit 140 mm. dia. post complete as per Specification No. IRS:S-10/78 Rev.8 or latest. Inspection: RITES/Consignee.	No.	6,988.00

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0845	Supply of offset bracket for position light shunt signal (90 mm. outside Dia.) post with U clamps, nuts, washers complete as per RDSO Drg. No. SA-23080/ADV/ALT-1 all drawings should be as per latest. Inspection: RITES/Consignee.	No.	2,573.00
0846	Supply of Shunt Signal Position Light type complete with base, post etc. as per Drg. No.SA-23840 (Adv.) Alt '1' or latest, S-23203 or latest and Drg. No. SA-23845(Adv.) or latest for 90 mm. dia. mounting socket as per Specification No. IRS:S-10/78 with Rev.8 or latest. Inspection: RITES/Consignee.	No.	8,549.00
0847	Erection of Ground type shunt signal complete including surface base, signal post, LED aspects, number plate, termination of tail cables, wiring of signal unit, provision of EWS locks and painting of one coat of red oxide and two coats of Aluminium / enamel paint, (Supply of Ground type shunt signal complete including surface base, signal post, LED unit is to be supplied by Railways). (EWS locks, enameled number plates , bolts and nuts, lead wool, paints and all other miscellaneous materials shall be supplied by the contractor).	No.	2,696.00
0848	Casting, concreting and curing of foundation for Shunt signal including cost of all materials required for casting and concreting. All materials required for execution will be supplied by the contractor, including holding down galvanised bolts & nuts with washers, cement, sand, stone chips, PVC pipe, shuttering etc. As per Drg. No. SK/5/95/NKG.	No.	5,152.00
0849	Supply of Calling ON/Guard Repeater Signal Unit with Brackets & Fixing accessories. Calling ON / Guard Repeater Signal Unit shall conform to RDSO Drg. No. 24351(Adv.) Alt1. suitable for LED Signal Lighting Unit. Inspection: RITES/Consignee.	No.	3,193.00
0850	Supply of A-sign / AG-LED Signal lighting Unit retrofittable in existing CLS housing and compatible with AC LED ECR (As per Spec. No. RDSO/SPN/199/2010 Rev.1.1 or Latest with Brackets & Fixing accessories). Inspection: RITES/Consignee.	No.	2,661.00

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0851	Fixing of Calling-on Signal / A-Sign / AG-Sign unit on signal post including Guard Repeater Signal. The item includes fixing of Co-On signal / 'A' sign / 'AG' sign unit on signal post with bracket, hood etc. Item includes supply of bracket & fixing materials etc. by the contractor. The item also includes termination of cables & wiring inside Co-On signal / 'A' sign / 'AG' sign unit as per standard practice.	No.	2,943.00
0852	Supply and fixing of protective screen of expanded metal 12 SWG of size 1200 x 1500 mm. on signals as per std. practice in the RE Area. Inspection: Consignee.	No.	4,415.00
0853	Supply of P / C / G / A / AG marker as per relevant drawing. Inspection: Consignee.	No.	694.00
0854	Supply, Fabrication of Retro reflective Nomenclature Board of size 254 mm. x 358 mm. made of 2 mm. thick aluminium sheet & high intensity prismatic (hip) grade retro reflective sheet (TYPE-IV) including fixing arrangement for fixing them on existing post per SEM and as per standard practice. Details of station, signal type and number to be obtained before supply. Inspection: Consignee.	No.	470.00
0855	Supply of 280 mm. x102 mm. x 2 mm. thickness vitreous enamel coating arrow markers board fabricated with MS clamp of size 40 mm. x 6 mm. along with suitable bolts and nuts. Inspection: Consignee.	No.	367.00
0856	Releasing of existing tail cables and drawl of new tail cables for color light signals up to four aspects with or without route indicator, post type shunt signal and calling on signals. Termination of new tail cables and wiring. This work includes drawl of new tail cables into the signal post duly releasing the existing tail cables from the relevant signals.	No.	3,864.00
0857	Dismantling of existing main signal including dependent shunt signal , calling on signal if any, fitted on the same post along with signal post, signal unit, CI base without damaging any part.	No.	1,535.00
0858	Dismantling of existing Signal Foundation (upto ground level by hydraulic breaker).	No.	2,788.00

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0859	Painting of existing color light Signals as per standard practice. The work involves scraping of old paint and two coats of aluminium enamel paint on the Signals & White paint inside signal unit and X mark on signal unit backside with white paint, Painting of Signal Unit, ladder, platform etc. complete as instructed by Railway representative at site (Paint and all other miscellaneous materials required for the work shall be supplied by the Contractor).	No.	1,831.00
0860	Provision of SCREEN on signals when they fall within 2 meters from the live conductor by expanding metal (size 20 mm. x 60 mm. strand 3.25 mm. wide and 1.6 mm. thick) as per the instruction of the site engineer in charge. This includes supply of all materials including connection with earth electrode. Provision of SCREEN on signals when they fall within 2 meters from the live conductor by expanding metal (size 20 mm. x 60 mm. strand 3.25 mm. wide and 1.6 mm. thick) as per the instruction of the site engineer in charge. This includes supply of all materials including connection with earth electrode. Inspection: Consignee.	No.	4,155.00
0861	Supply and fixing of cross bar on signal (signal not in use) made of hard wood of size 1000 mm. x 100 mm. x 20 mm. The cross bar shall be painted white as per Signal Engineering Manual. All material required for installation shall be supplied by the contractor. Inspection- Consignee.	No.	482.00
0862	Supply of Pipe lock with key ring size inside dia. 40.5 mm., outside dia. 60mm. Thickness 20 mm., lock length 65 mm. Inspection: Consignee.	No.	162.00
0863	Supply and fixing of wire mesh for the following signals , duly painted with black enamel in two coats. Inspection: Consignee.		
	a) Color Light Signals each LED	No.	102.00
	b) Route Indicator Junction type on each LED	No.	71.00
	c) Calling on signal	No.	79.00
	d) Box type mesh for ground type shunt signal	No.	714.00

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0864	Removal of existing CLS units, fixing of new CLS units with LED aspects, up to four aspects, directly or using off set brackets duly drilling holes on the signal poles, provision of EWS locks wherever necessary, termination of tail cables, wiring and painting of aspect. The new tail cables shall be taken through the signal poles and the unwanted cables duly released. [EWS locks, paints and all other miscellaneous materials shall be supplied by the Contractor].	No.	8,321.00
0865	Fixing and wiring of platform repeaters. The work involves fixing of platform repeater using suitable fixing arrangements at places indicated, wiring the same and painting as per the instructions of Railway representative at site. The signal shall be connected to the apparatus case using cables neatly clamped. The work also includes provision of one EWS lock. (Laying of cable, supply of repeater signals and cables is not included in this schedule). [Required paint, EWS lock and all other miscellaneous materials required for the work shall be supplied by the Contractor].	No.	5,113.00
0866	Strengthening of foundations of signals, Full/Half location boxes up to a height of 30 cm, by carrying out the earth work around the foundation, ramming of the earth, carry out masonry work from bottom of earth work using country stones and cement masonry to prevent the earth from slipping down the bank.	Sqm.	753.00
0867	Fabrication, Supply and fixing of CALLING ON instruction boards, STOP boards/BSLB/Shunting Limit Board/Auto section board or any other board with engineering grade reflective sticker of size 600 X 1000 mm. GI sheet, with MS angle of 75 mm. X 75 mm. X 6 mm. with 6 meter length including paint, excavation of pit and concrete foundation etc. as per the instructions of sight in-charge. All necessary materials to be arranged by the contractor). Inspection: Consignee.	No.	7,267.00
0868	Provision of foundation for the signal warning boards/calling on boards/all types of boards. (A pit of size 400 mm. x 400 mm. x 1500 mm. is to be dug and cement concrete foundation in the pit in the ratio 1:3:6 to be casted. The rail post/MS angle is to be erected up right in the foundation.	No.	1,548.00

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0869	<p>Providing and fixing of Speed board on signal post complete with retro reflective sheeting over the board and with all fixing arrangements of size 900 mm. equilateral triangle made of 2 mm thick aluminium sheet and back support 25 mm. x 3 mm. MS flat with theft resistant measures, mounted and fixed with 2 Nos. M.S. angles to suit Signal post. Backside of aluminium sheet to be painted with two coats of epoxy paint over and including appropriate priming coat including all leads and lifts etc. complete as per drawing, specification, and direction of Engineer-in-charge.</p> <p>Inspection: Consignee.</p>	No.	3,593.00
0870	<p>Supply, erection and fixing of retro reflective type BPAC Warning boards/IBS Legend Board of size 1000 X 600 X 3 mm. The boards shall be provided with Retro Reflective type BPAC Warning boards. MS Angle, stone jelly of size 20/25 mm. dia. river sand, cement, fixing bolts and nuts, paint and all other miscellaneous materials required for the work shall be supplied by the contractor.</p> <p>Inspection: Consignee.</p>	No.	9,474.00

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CHAPTER - 9 :
Level Crossing Gates & accessories etc.

SN	Description	Unit	Rate
0901	<p>Supply of Electrically operated Lifting Barrier complete set suitable for 110V AC / 24V DC / 110V DC. Supply of hand generator back up & motorized boom locking arrangements as per RDSO Spec. No. SPN/208/2012 Ver. 2.0 Amd.1 or with the latest amendment. One set consisting 02 No. of barriers of length 9.76 Mtrs. with stop boards, MS counterweights and 2 nos. of boom support, control panel, Spares & tool kit mentioned in RDSO Specification clause 10.1 & 10.2 mentioned below to be supplied with EOLB set :</p> <p>10.1 Spares: (i) GI boom - 1 No. (ii) Belt - 1 No. (iii) Crank Handle - 1 No. (iv) Motor Contactor - 1 No. (v) Motor Protection MCB - 1 No. (vi) Push button complete - 2 Nos. (vii) Limit Switch - 3 Nos. (viii) Fuses used- 2 Sets.</p> <p>10.2: Tool Kit as per RDSO specs. Warranty: Electric Lifting barrier shall be commissioned only if the installation is certified fit by the OEM. Electric Lifting Barrier complete including its sub-systems shall be under warranty for a period of 24 months date of commissioning, whichever is earlier. Inspection: RDSO. Payment: 80% on supply and balance 20% after commissioning.</p>	Set.	5,66,573.00
0902	<p>Installation, testing and commissioning of electrically operated lifting barrier, complete with Casting of cement concrete foundation (including supply of sand, stone, cement, bolt, plate, shuttering etc.) for pedestal and boom rest post, cabling, power supply connection & wiring with complete outdoor work as per approved drawing / POLICY of ER, wiring etc.</p>	Set.	62,460.00

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0903	Painting & Lettering of Electric lifting barriers (ELB) includes Operating console, lifting barriers, pedestal driving & driven mechanism, Electric motors, stop boards, Boom light, Boom rest & Boom locking arrangements etc.	Set.	3,441.00
0904	Supply of Dual Tone Bell/Buzzer with Flasher arrangement and 20 Watt horn working on 24 V DC/ 110 V AC for warning road users at LC gates. Inspection: Consignee.	Set.	6,041.00
0905	Supply of electrical lifting barrier booms of 9.76 meter each as per DRG RDSO/S 11600. The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	No.	20,390.00
0906	Supply of Motorised boom locking set (consisting of locking arrangement for two booms). The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	Set.	38,364.00
0907	Supply of Power contractor/Relay for motor 24V DC , Make L&T/ABB/SIEMENS/SCHNEIDER. The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. Inspection: RDSO/Consignee.	No.	2,283.00
0908	Supply of PMDC Motor 24V DC, 90W/1500 RPM . The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. Warranty Certificate of OEM to be submitted. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	No.	14,806.00
0909	Supply of boom lock PMDC motor 24V DC/40W/1500 RPM . The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. Warranty Certificate of OEM to be submitted. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	No.	2,747.00

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0910	Supply of TIMING Belt . The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. Make- MITSUBISHI/CONTITECH/OPTIBELT/BANDO. Warranty Certificate of OEM to be submitted. Inspection: RDSO/Consignee.	No.	1,111.00
0911	Supply of Friction Clutch Sub Assembly . The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	No.	6,850.00
0912	Supply of Push Button Elements . The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. MAKE-L&T/TELEMECANIQUE/JAIBALAJI/SCHNEIDER / SIMENS. Warranty Certificate of OEM to be submitted. Inspection: RDSO/Consignee.	No.	442.00
0913	Supply of Generator PMDC motor 24V DC, 180W/1500 RPM (for model HELB-601 OR SIMILAR). The material will be as per RDSO Spec. No. RDSO/SPN/208/2012 Ver.2.0 and Amendment.1 or latest. To be procured from RDSO approved sources. Inspection: RDSO/Consignee.	No.	19,015.00
0914	Supply of Limit Switch Set for boom lock proving. The material will be as per RDSO Spec. No. RDSO/SPN/208/2012/Ver.2.0 and Amendment.1 or latest. MAKE - BOHMEN/ HOTLINE SWITCHGEAR/ CONTROL/ SCHNEIDER/ TELEMECANIQUE/ JAIBALAJI. Warranty Certificate of OEM to be submitted. Inspection: RDSO/Consignee.	No.	1,447.00
0915	Fabrication and supply of gate control panel of size 12 x 24 inches as per the panel diagram to be supplied by Railways, MS sheet type, complete with LED indications etc., painting, screen painting of gate plan, signals etc. pre-wired with 4 signal knobs, a knob for gate control and another for SM control. All material required shall be supplied by the contractor as per drawing. Inspection: RITES/Consignee.	No.	12,379.00

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0916	Supply of sliding boom gate as per eastern railway signal workshop/Howrah's drawing no. SW/SA/768 or Latest. This includes a supply of 6 nos. E-type lock with key as per IRS Spec. No. IRS:S-30/64 with latest amendment. Key lock 'e' type as per drawing no. SA-3376/M, SA-3377/M with latest amendment or Latest. Ward no. To be decided by the site engineer. 'E' type lock to be on MS plate as mentioned in the drawing. Inspection: RITES/Consignee Payment: 80% on supply and balance on commissioning.	Set.	2,49,072.00
0917	Casting, concreting & curing of foundation (1:3:6) for sliding boom gate as per drawing no. SGW-SDAH/SLIDING GATE FOUNDATION/2012 or Latest including supply & fixing of holding down bolts with washers and nuts, MS plates of size 350 mm. x 350 mm. x 8 mm., cement, sand, stone chips etc. For foundations required in each set of gate.	Set.	67,031.00
0918	Installation & commissioning of sliding boom gate. This includes levelling, fixing of sliding boom with fixing of E-type lock, etc. Note: all materials to be supplied by the contractor except sliding boom gate and E-type lock.	Set.	8,872.00
0919	Supply of paint of approved quality (Asian, Berger, Nicholson) and painting of complete sliding boom arrangements and accessories (Rectangular boom movement stand, pillar supports, resting stand with one coat of red oxide and two coats of Yellow/black enamel paint & Yellow color retro reflective tape (HIP) with width of 12" and as directed by engineer in-charge at site. Inspection: Consignee.	LS.	7,907.00
0920	Supply of Master telephone with voice recorder as per RDSO Spec. No. RDSO/SPN/TC/51/2011 Rev.4.0. Inspection: RDSO.	No.	55,571.00
0921	Installation, testing and commissioning of Master gate telephone. This Includes testing and commissioning, all installation related material to be supplied by the contractor as per site requirement.	No.	7,771.00

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0922	Supply of Gate (slave) Telephone with voice recorder as per RDSO Spec. No. RDSO/SPN/TC/51/2011 Rev.4.0. Inspection: RDSO.	No.	5,794.00
0923	Installation, testing and commissioning of slave gate telephone. This Includes testing and commissioning, all installation related material to be supplied by the contractor as per site requirement.	No.	824.00
0924	Supply of 24V Power supply unit with MF Battery and Charger for Master Telephone as per RDSO Spec. No. RDSO/SPN/TC/51/2011 Rev.4.0. Inspection: RDSO.	No.	7,487.00
0925	Installation, testing and commissioning of 24V Power supply unit with MF Battery and Charger for Master Telephone. All installation related material to be supplied by the contractor as per site requirement.	No.	948.00
0926	Dismantling and Releasing of existing Electrically operated LC gate/Mechanically operated LC gate and other associated S&T fittings. All the released material will be transported to the SSE/Consignee depot.	Set.	8,916.00
0927	Supply of Key Lock 'E' type to Drg. No. SA-3376/M (IRS) Alt.-2 (with latest Alt if any) and Key to Drg. No. S-3377/M (IRS) to <u>ward as specified by engineer</u> and RDSO Specification No. IRS:S-30/64 (with Amdt. up to date if any). Inspection: RDSO.	No.	1,108.00
0928	Supply of Red/Yellow/Black Highlighter Reflective Tape (50 mm. width) of grade retro reflective tape conform to IS 14221 or latest, BIS marked, Grade 2, Pressure type bonding for (Grade 1) R1-P. Inspection- Consignee.	Mtr.	115.00
0929	Supply of Automatic Gate Warning System for Level Crossing Gate. Inspection- RITES/Consignee.		
	a) Supply of LED Based Station Master indication to show the Signature valid Gate Status	Pair.	27,258.00
	b) Supply of LED Based Audio-Visual approach warning unit with acknowledgment facility.	No.	32,450.00
	c) Supply of Communication unit for receiving unit for receiving Signal & Track circuit information from Data logger along with inbuilt modem to communicate with Gate unit.	Pair.	1,79,124.00

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0930	Installation, Testing and commissioning of Automatic Gate Warning System for Gate		
	a) LED Based Audio-Visual Approach Warning System	No.	9,735.00
	b) Communication unit and Station master indication unit	Pair.	44,781.00
0931	Supply and fixing of 'AHUJA' or similar make horn type loud speaker 15W 8 ohms impedance at LC gate Road signal. Inspection- RITES/Consignee.	No.	1,407.00
0932	Supply and installation of Electronic Flasher unit, able to drive 2 No. of flasher lights. Inspection- RITES/Consignee.	No.	2,572.00
0933	Supply and fixing of Electronic Hooter unit 24/110 DC of approved design/make able to drive 2 Nos. of Speakers of 8 ohms 15W. Inspection- RITES/Consignee.	No.	2,732.00
0934	Concreting foundation for Pedestal lifting barrier (electrical/mechanical) as per Drg. No. SK/SC/CN/33/85 (all materials viz., cement, metal stone, sand and foundation bolts are to be supplied by the Contractor).	No.	6,491.00
0935	Excavation of a pit and concreting foundation for 2 Nos. of lifting barrier gate meeting posts, using anchor bolts of size 20 mm. X 450 mm. as per tech. Spec. (All materials except cement to be arranged by the Contractor).	Set.	1,815.00

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CHAPTER - 10 :**Panel Room Equipments, Fire Alarm Equipments, Furnitures etc.**

SN.	Description	Unit	Rate
1001	<p>Supply of Domino Type Control Panel for Railway Signaling with tag blocks, wires, angle iron, LED etc., depicting the yard layout with signals points, track circuits etc. housed in a steel metal cabinet. This also includes acrylic sheet supply & fixing on panel as per Specification No. RDSO/SPN/186/2004 Rev.2.0 with latest amendment. Note: All fused LEDs shall be replaced by the contractor during the testing period. 20% (minimum one) of buttons and LEDs of each color shall be given as spare after commissioning while handing over the installation. Panel shall be supplied complete with wiring & soldering along with Panel tag block analysis, Indication panel diagram by contractor.(For RRI/PI/EI) Note:- The above item includes supply of two buttons of each type used, two counters and ten domino units as spare and supply of two sets of panel tool kits .Tag block shall conform to RDSO Spec. No. IRS-S-77/2006. Manufacturer's name plate with address to be provided.</p> <p><u>The Panel should be made as per the PANEL DIAGRAM supplied by Railways. TOOLKIT: Two Domino module removers.</u></p> <p>Inspection: RITES/Consignee.</p> <p>Payment: 80% on supply and balance after commissioning.</p>	Per Domino Unit.	434.00
1002	<p>Installation, Fixing, Complete wiring & Testing of Control cum Indication Panel for station. The indoor wiring inside panel shall be terminated on tag block as per instructions of Engineer-in-charge. The wiring on panel tag blocks shall be repeated on tag blocks located in the relay room. This includes laying & termination of cable, if any from Panel Room to Relay Room in HDPE pipe.</p>	Per Domino Unit.	19.00
1003	<p>Supply of Domino units with cover plate as per approved panel diagram, each of size 54 x 34 mm. completely wired up similar to Siemens or similar make. Each domino units should have all the 15 contact terminals wired up.</p> <p>Inspection: RITES/Consignee.</p>	No.	1,140.00

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1004	Supply of Top Plate with buttons as per requirement of Domino type of control panel suitable for domino size 54 x 34 mm. Inspection: RITES/Consignee.	No.	257.00
1005	Supply of Panel Indication LED of White/Red/yellow color suitable for Domino Type Control Panel for Railway Signaling. Inspection: RITES/Consignee.	No.	40.00
1006	One set of different types of panel key for domino type control cum indication panel. Make - Deltron/Ultra. OEM Warranty shall be submitted.	No.	1,377.00
1007	Supply of Office Chair make Godrej CH-7B or better of reputed brand. Inspection: Consignee.	No.	3,658.00
1008	Supply of Office Revolving Chair Godrej Make Model No.9u02r Bravo or Better of reputed brand. Inspection: Consignee.	No.	11,386.00
1009	Supply of Office table with laminated top with three drawers on left hand side and one locker on the right hand side. Olive brown with duplicate keys. Make: Godrej Model T-9 (136.5 cm. X 68 cm. X 75 cm.) or Superior of reputed brand. Inspection: Consignee.	No.	16,244.00
1010	Supply of Steel Plain Almirah with 4 adjustable slaves. Size: 1980 mm. height, 915 mm. width and 485 mm. depth. Make: Godrej Storewel Plain Large or Better of reputed brand. Inspection: Consignee.	No.	21,636.00
1011	Releasing existing block instruments and allied gadgets.	No.	783.00

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<u>Work Space</u>			
1012	Supply, Installation, testing & commissioning of New modular U Shape VDU Table for provision of 02 nos. 55" VDU as per Detailed specifications vide Annexure-A and drawing is attached in Annexure- B (attached with tender document). Inspection: RITES.	Lot.	10,19,621.00
1013	Supply, Installation, testing & commissioning of New modular U Shape VDU Table for provision of 02 nos. 65" VDU as per Detailed specifications vide Annexure-A and drawing is attached in Annexure- B (attached with tender document). Inspection: RITES.	Lot.	11,02,525.00
1014	Supply, Installation, testing & commissioning of New modular U Shape VDU Table for provision of 02 nos. 85" VDU as per Detailed specifications vide Annexure-A and drawing is attached in Annexure-B (attached with tender document). Inspection: RITES.	Lot.	11,86,100.00
1015	Supply, Installation, testing & commissioning of New Modular LCD mounting Stand for provision of 01 no. 55"-85" VDU as per Detailed specifications vide Annexure-A and drawing is attached in Annexure-B (attached with tender document). Inspection: RITES.	Lot.	97,575.00
<u>AFDAS</u>			
1016	Supply, Installation, Testing & Commissioning of Microprocessor based Networkable Analogue Addressable up to 64 nodes 1 Loop Fire Alarm Control panel with LCD display , the panel should be equipped with sufficient numbers of loop as per RDSO Specification No. RDSO/SPN/217/2025 Version No. 3.1 or latest. Each loop shall have capacity of 127 analogue addressable devices in 1 loop, the panel shall have sufficient No. of programmable relay control for controlling AHU's, pressurization fans, ventilation fans at fire pump room, monitoring of fire sprinkler & sealed lead acid batteries sufficient for 24 Hours normal working & then capable of	No.	70,159.00

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	<p>operating the system for 24 Hours during Emergency conditions as required. The panel shall have provision of connectivity of BACNET/ MODBUS/ LONWOK/TCP-IP. The panel shall have dedicated RS232 serial port for direct PC or MODEM connection, optional remote printer as per RDSO Specification No. RDSO/SPN/217/2018 Ver.2.0 or latest.</p> <p>Inspection: RDSO. Payment: 70% on supply, balance on commissioning.</p>		
1017	<p>Supply, installation, and commissioning of Active Repeater Panel with backlit Liquid Crystal Display & Reset, Silence & Acknowledge function. The unit should be UL listed and FM approved complete as per specifications. Make-Honeywell or similar.</p> <p>Inspection: RDSO.</p>	No.	68,250.00
1018	<p>Supply, Installation, Testing & Commissioning of intelligent Analogue Addressable Multi-Sensor type smoke detector with inbuilt fault isolator and integral response indicator with 360 degree viewing angle. Detector shall communicate 3 danger levels for differentiated alarm activation and high tolerance to dust, dirt, temperature fluctuations and air current. Detector should have a unique address for communication and be assigned through a panel with mounting base as required with the protection category of IP 40. All items as per RDSO Specification No. RDSO/SPN/217/2025 Version No.3.1 or latest.</p> <p>Inspection: RDSO. Payment: 70% on supply, balance on commissioning. Note- To be used in Ceiling at Relay Room, IPS room, OFC room.</p>	No.	3,364.00
1019	<p>Supply, Installation, Testing & Commissioning of Analogue Addressable Manual Call Point with integral short circuit isolator, Analogue addressable protocol having status LED for alarming & standby mode, Electronically addressed) as per RDSO Specification No. RDSO/SPN/217/2025 Version No.3.1 or latest.</p> <p>Inspection: RDSO. Payment: 70% on supply, balance on commissioning. Note- To be provided at a location diligently chosen.</p>	No.	3,995.00

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1020	Supply, Installation, Testing & Commissioning of Linear Heat Sensing (LHS) cable as per RDSO Specification No. RDSO/SPN/217/2025 Version No.3.1 or latest. Inspection: RDSO. Payment: 70% on supply, balance on commissioning.	Mtr.	1,046.00
1021	Supply, Installation, Testing & Commissioning of LHS interface module (Monitor Module + LHS Panel + EOL End of Line) as per RDSO Specification No. RDSO/SPN/217/2025 Version No.3.1 or latest. Inspection: RDSO. Payment: 70% on supply, balance on commissioning.	No.	55,794.00
1022	Supply, Installation, Testing & Commissioning of intelligent Addressable Loop Powered Sounder cum beacon with base inbuilt fault isolator with protection category of IP42 and duly approved as per RDSO Specification No. RDSO/SPN/217/2025 Version No.3.1 or latest. Inspection: RDSO. Payment: 70% on supply, balance on commissioning.	No.	8,963.00
1023	Supply, Installation, Testing & Commissioning of FRLS unarmoured/armoured cable (2C x 1.5 sq. mm.) with all accessories for connection of all Fire Alarm devices as per RDSO Specification No. RDSO/SPN/217/2025 Version No. 3.1 or latest. Inspection: RDSO. Payment for Supply Items: 70% on supply and balance on commissioning.	Mtr.	125.00
1024	Supply of CO2 type fire extinguisher capacity 4.5 Kg capacity ISI Mark IS: 15683 operating temperature (-30)° to (50)° for class 13 B type of fire with 1 mtr. Hose pipe fitted with PVC bend horn complete in all respect. Inspection: RITES/Consignee.	No.	6,009.00

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<u>Aspiration Type Detector</u>			
1025	<p>Supply, Installation, testing and commissioning of single channel laser or High-power LED based Aspiration detection unit with area covering 5000 sq. ft. with programmable 4 stage alarm generation and with 4 addressable modules. It should have an auto cleaning facility in the optical chamber, electronic discrimination of particle size, ultrasonic air flow sensing auto learn feature with TCP/IP network capability, the aspiration system shall also include external power supply unit with battery backup. Approval-UL/LPCB/VDS listed and shall comply with Specification No. RDSO/SPN/217/2025 Ver.-3 or latest. Spares cost is also included & to be supplied as per RDSO para no. 4.15.</p> <p>Inspection: RDSO.</p> <p>Payment: 70% on supply, balance on commissioning.</p>	Set.	1,85,877.00
1026	<p>Supply, Installation, Testing & Commissioning of UL/LPCB/VDS listed CPVC Pipe with suitable diameter as per requirements & pipe accessories for the Aspiration detection shall comply with RDSO/SPN/217/2025 Ver.3 or latest. Spares cost is also included & to be supplied as per RDSO para no. 4.15.</p> <p>Inspection: RDSO.</p>	Mtr.	379.00

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FIRE SUPPRESSION SYSTEM			
1027	<p>Supply of FIRE SUPPRESSION SYSTEM As per RDSO/SPN/218/2016 Version 1.0-d2 or Latest. Design, Supply and Installation of FIRE SUPPRESSION SYSTEM having non-toxic, environment friendly, non-corrosive, clean gaseous agent at the atmospheric pressure, safe for Electronic/Electrical/ Telecommunication Equipments/Computers, Human Friendly, non-residual, Non-inflammable, type agent Heptafluoropropane (C3F7H) (HFC227ea) FM 200 GAS. This system must include hydraulic flow calculations for the suppression areas and vetting of the UL/VDS listed Software Results from the OEM Factory Engineer. This shall be a Total Flooding system for Relay Room and Equipment Room with Automatic sensing and Activation along with the microprocessor based Release Advance Multifunction Programmable control panel (in-built with main equipment).</p> <p>Inspection for all sub items by RDSO.</p> <p>Payment for Supply Items : 70% on supply and balance on commissioning for all items given below-</p> <p>The system includes following sub-systems:</p>		
1028	<p>Supply of 80 Ltr. cylinder- CCOE/PESO approved and Valve Assembly according to Hydraulic Flow Calculations for the Suppression areas. The cylinder should be dispatched filled with FK5112 agent & pressurized to 42 bar along with valve assembly and pressure gauge with a safety burst disc, safety cap & C-Straps-2 nos. Approval-UL/VDS listed. Approval-UL/VDS Listed, Make: Honeywell, Model No. H2-42-80-000 or similar.</p> <p>Inspection: RDSO.</p>	No.	1,44,426.00
1029	<p>Installation, Testing & Commissioning of 80 Ltr. cylinder Approval-UL/VDS Listed, Make: Honeywell, Model No. H2-42- 80-000 or similar.</p>	No.	34,896.00
1030	<p>Supply of 120 Ltr. cylinder- CCOE/PESO Approved and Valve Assembly according to Hydraulic Flow Calculations for the Suppression areas. The cylinder should be dispatched filled with FK5112 agent & pressurized to 42 bar along with valve assembly and pressure gauge with a safety burst disc, safety cap & C-Straps-2 nos. Approval-UL/VDS Listed Make: Honeywell, Model No. H2-42-120-000 or similar.</p> <p>Inspection: RDSO</p>	No.	2,08,299.00

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1031	Installation, Testing & Commissioning of 120 Ltr. cylinder Approval-UL/VDS Listed Make: Honeywell, Model No. H2-42- 120-000 or similar.	No.	41,660.00
1032	Design & Supply of UL Listed FK-5-1-12 fire suppression agent. The Hydraulic software report should have the dead volume agent quantities reflected for the rooms as per UL 2166 /VDS 2380/2381, Make: Honeywell, Model No. H2-120-000 or similar. Inspection: RDSO.	No.	4,018.00
1033	Installation, Testing & Commissioning of UL Listed FK-5-1-12 fire suppression agent. The Hydraulic software report should have the dead volume agent quantities reflected for the rooms as per UL 2166 /VDS 2380/2381, Make: Honeywell, Model No. H2-120-000 or similar.	No.	804.00
1034	Supply of UL Listed Discharge hose for above Cylinders, complete Adapters & Accessories as required. Approval- UL/VDS Listed, Make: Honeywell, Model No. H4-031-000 or similar. Inspection: RDSO	No.	22,843.00
1035	Installation, Testing & Commissioning of UL Listed Discharge hose for above Cylinders, complete Adapters & Accessories as required. Approval-UL/VDS Listed, Make: Honeywell, Model No. H4-31-000 or similar.	No.	4,569.00
1036	Supply of Electric/manual Actuator which can be operated electrically from the Detection & Control System or locally with a manual lever on the control head. Approval-UL/VDS Listed. Make: Honeywell, Model No. H4-031-000 or similar. Inspection: RDSO.	No.	56,828.00
1037	Installation, Testing & Commissioning of Electric/manual Actuator which can be operated electrically from the Detection & Control System or locally with a manual lever on the control head. Approval-UL/VDS Listed. Make: Honeywell, Model No. H4-031-000 or similar.	No.	11,366.00
1038	Supply of Manifold Supervisory Switch for indication of discharge of system. Approval-UL/VDS Listed, Make: Honeywell, Model No. H4-081-000 or similar. Inspection: RDSO.	No.	22,426.00

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1039	Installation, Testing & Commissioning of Manifold Supervisory Switch for indication of discharge of system. Approval-UL/VDS Listed, Make: Honeywell, Model No. H4-081-000 or similar.	No.	4,485.00
1040	Supply of UL Listed Brass Nozzles, 360 Deg. / 180 Deg Throw , selection as per approved hydraulic flow calculations. Approval-UL/VDS Listed Make: Honeywell, Model No. H5-001-000 or similar. Inspection: RDSO.	No.	7,645.00
1041	Installation, Testing & Commissioning of UL Listed Brass Nozzles, 360 Deg. / 180 Deg. Throw , selection as per approved hydraulic flow calculations. Approval-UL/VDS Listed. Make: Honeywell, Model H5-001-000 or similar.	No.	1,529.00
1042	Supply of MS Fabricated Floor Supported Cylinder Support Stand , wherever Required complete with 1 coat of Primer and 2 coats of Black Enamel Paint. Make: Any reputed brand. Inspection: RDSO.	No.	44,742.00
1043	Installation, Testing & Commissioning of MS Fabricated Floor Supported Cylinder Support Stand , wherever Required complete with 1 coat of Primer and 2 coats of Black Enamel Paint. Make: Any reputed brand.	No.	17,624.00
1044	Supply of M.S. Seamless pipes as per ASTM A 106 Gr. B. Sch. 40 pipe along with Pipe support, Manifold & all other accessories required to complete the system .Complete piping shall be installed as per hydraulic flow calculations. Make: Any reputed brand. Inspection: RDSO.	No.	1,43,173.00
1045	Installation, Testing & Commissioning of M.S. Seamless pipes as per ASTM A 106 Gr. B. Sch. 40 pipe along with Pipe support, Manifold & all other accessories required to complete the system. Complete piping shall be installed as per hydraulic flow calculations. Make: Any reputed brand.	No.	32,981.00
1046	Supply of Cylinder Protective Cap for 42 Bar System . Make-Honeywell. Model No. H4-088-000 or similar. Inspection: RDSO.	No.	5,218.00
1047	Installation, Testing & Commissioning of Cylinder Protective Cap for 42 Bar System . Make-Honeywell. Model No: H4-088-000.	No.	1,044.00

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1048	Supply of Cylinder Strap for 80 Ltr. Cylinder. Make: Honeywell. Model No: H4-012-000 or similar. Inspection: RDSO.	No.	5,218.00
1049	Installation, Testing & Commissioning of Cylinder Strap for 80 Ltr. Cylinder. Make: Honeywell. Model No: H4-012-000 or similar.	No.	1,044.00
1050	Design of Fire Suppression System -The proposed fire suppression system should be designed using FK-5112 clean agent, stored in CCOE/PESO-approved cylinders pressurized to 42 bar, suitable for fire protection in Indian Railway Signaling & Telecommunication Relay Room, IPS room, OFC Room. Note - 1) Cylinder & Valve Assembly Engineered on the basis of hydraulic flow calculations to ensure optimized discharge and uniform agent distribution. 2) System design will be carried out using UL-approved software tools, ensuring compliance with UL guidelines for clean agent fire suppression. 3) System to be designed with Individual Risk with Main System. 4) The contractor/bidder/system integrator shall design the complete system as per the Nos. of applicable rooms. GSS Hardware/equipment shall be installed and as per the final room(s) sizes and dimensions at the time of final installation & commissioning. 5) The contractor/bidder/system integrator shall provide and install all accessories, options and arrangements to make the system completely and fully operational. All components of the total flooding suppression system shall be manufactured in India and shall be UL/VDS listed from the same OEM. 6) The complete System listing and Gas concentration shall be as per UL 2166 or VDS 2380/2381 Approval-UL/VDS Listed.	No.	38,350.00
1051	Supply, Installation, testing and commissioning of UL/FM/LPCB Listed Pneumatic Actuation Assembly to activate slave cylinders complying to RDSO/SPN/218/2016 Version 1.0-d2 or Latest. Payment for Supply Items: 70% on supply and balance on commissioning. Inspection: RDSO .	Job.	6,736.00

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1052	Supply, Installation, testing and commissioning of UL/FM/LPCB Listed Manual Release Unit Stations with DPDT Relay , shall be fitted with transparent hinged covers to avoid the possibility of accidental operation. The Release switch will be monitored simultaneously by Fire Alarm And Remote Monitoring Software complying to RDSO/SPN/218/2016 Version 1.0-d2 or Latest. Inspection: RDSO Payment for Supply Items: 70% on supply and balance on commissioning.	Job.	2,520.00
1053	Supply, Installation, testing and commissioning of UL/FM/LPCB Listed Manual Gas Abort Unit Stations with DPDT Relay , shall be fitted with transparent hinged covers to avoid the possibility of accidental operation. The abort will be monitored simultaneously by Fire Alarm And Remote Monitoring Software complying to RDSO/SPN/218/2016 Version 1.0-d2 or Latest. Inspection: RDSO. Payment for Supply Items: 70% on supply and balance on commissioning.	Job.	2,520.00
1054	Supply, Installation, testing and commissioning of UL/FM/LPCB Listed Human Proximity Sensor . It shall have a Warning Sign Board with Marking "GAS DISCHARGE. DO NOT ENTER". Shall operate on 24 V DC, Driver Through Gas Release Panel (for use outside room) complying to RDSO/SPN/218/2016 Version 1.0- d2 or Latest. Inspection: RDSO. Payment for Supply Items: 70% on supply and balance on commissioning.	Job.	56,018.00
1055	Supply, Installation, testing and commissioning of UL/FM/LPCB Listed Discharge Pressure Switch complying to RDSO/ SPN/218/2016 Version 1.0-d2 or Latest. Inspection: RDSO. Payment for Supply Items: 70% on supply and balance on commissioning.	Job.	15,871.00

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1056	Supply, Installation, testing and commissioning of cylinder limit Switch to monitor the health of cylinder complying to RDSO/SPN/218/2016 Version 1.0-d2 or Latest. Inspection- RDSO. Payment for Supply Items: 70% on supply and balance on commissioning.	Job.	8,432.00
1057	Installation, testing and commissioning of Automatic fire (Suppression) protection system complete with cylinders, aspiration sensor, gas discharge piping, control Panel, flame sensor, smoke as per RDSO SPN No. RDSO/ SPN/218/2016 Version 1.0- d2 or Latest sensors, hoses, actuator etc. and this also includes Supply, Installation, Testing and commissioning of Integrated Remote Monitoring system Software for complete as per specifications, for integrating, Fire alarm system, VESDA system for monitoring at Division Head Quarter including scope such as Remote Monitoring Software 1 no. and 32 Bit IP based Direct Digital controller 1 no. with on board NBacmet & Modbus protocol for Integration with Fire Alarm Panel to monitor status of cylinder pressure switch, panel operating mode, Fire status on Remote Monitoring Software. The software should have capabilities to send mail alerts. The system should comprise of necessary panel, switches, cables etc. required to complete the Job.	Set.	41,744.00
1058	Supply of Solid State Buzzers with different frequencies in metallic/ plastic casing working on 12V - 24V - 60V. Inspection: Consignee.	No.	297.00
1059	Supply of 2N/2R Micro switch of L&T or Siemens make. Inspection: Consignee.	No.	552.00
1060	Supply of 6 digit 24V non resettable impulse counter. Inspection: Consignee.	No.	1,377.00
1061	Supply of Feather lite table of Model No. V-MT 1890 & V-2D+1F or similar. Inspection: Consignee.	No.	29,295.00
1062	Supply of Godrej CH7 model or similar. Inspection: Consignee	No.	3,980.00

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1063	Supply of Godrej PCH5d13R model or similar. Inspection: Consignee.	No.	5,464.00
1064	Supply of Godrej PCH 5002T model or similar. Inspection: Consignee.	No.	10,571.00
1065	Supply of Godrej shelf storage of 916 x 486 x 1981 mm or similar. Inspection: Consignee.	No.	26,230.00
1066	Supply of steel stools 18" height neatly finished and painted. Inspection: Consignee.	No.	484.00
1067	Supply of Fiber table of 4 Feet x 2 Feet one number and fiber chairs two numbers. They should be of standard make and quality like Neelkamal or Similar. Inspection: Consignee.	No.	2079.00
1068	Supply of HDPE jerry can of 20 liters capacity. The jerry can shall be supplied at site as per the requirement of site in charge. Inspection: Consignee	No.	153.00
1069	Supply of Godrej Navtal Locks with a diameter of 50mm with 3 keys. Inspection: Consignee.	No.	558.00
1070	Supply of key chains with ring and plastic name plate of dimensions 60 mm. x 20 mm. x 3 mm. The plastic name plate shall be engraved with station name on one side and key particulars on the other as specified by the site in-charge. Inspection: Consignee.	No.	34.00
1071	Supply of Aluminum Step ladder of 5 feet height of Bathla make or similar. Inspection: Consignee	No.	9036.00
1072	Supply of Double key lock for relay room. Inspection: Consignee.	No.	1,221.00

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1073	Providing and laying vitrified floor tiles in different sizes with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colors and shades, laid on 20 mm. thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ Sq.m. including grouting the joints with white cement and matching pigments etc., complete. Inspection: Consignee.		
	a) Size of Tile 500 x 500 mm.	Sq.m.	1,004.00
	b) Size of Tile 600 x 600 mm.	Sq.m.	1,189.00
	c) Size of Tile 800 x 800 mm.	Sq.m.	1,394.00
	d) Size of Tile 1000 x 1000 mm.	Sq.m.	1,980.00
1074	Supply and installation of wire mesh (GI) with welded MS flat / Aluminium frame and fixing on windows/ ventilators of different sizes as to be given by engineer. Inspection: Consignee.	Sq.Ft.	663.00
1075	Manufacturing and fixing of glass fronted box (key box) made out of teak wood of size 406 X 254 X 75 mm. Inspection: Consignee.	No.	3,541.00

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Annexure-A for Workspace	
SN	Item Description for VDU Table-
1	<p>Supply, Installation, testing & commissioning of New modular U Shape VDU Table for provision of 02 nos. 55"/65"/85" VDU as per Detailed specifications and drawing is attached in Annexure-B.</p> <p>This item includes Mandatory Certificates for VDU Table:-</p> <ol style="list-style-type: none"> 1. The proposed Control Desk's life cycle should be assessed (from approved LCA consultant) for environmental impacts associated with all the stages of a product's life for cradle to grave analysis. The EPD (Environmental product declaration) of control room console shall be verified in accordance with ISO 14025 (from UL/Intertek) for Impacts on Environment by control room console. 2. The metal shutter tile shall be class A fire rated as per ASTM e84 valid certificate/report (from UL/Intertek) for surface burning characteristics. 3. The proposed console shall be Greenguard Gold certified (from UL/Intertek). <p>VDU table material Specs:-</p> <ol style="list-style-type: none"> 1. Table-top: The material of the working surface shall be minimum 25 mm thick MDF with High-Pressure laminate. 2. Structure: Made of Powder coated MS structure. 3. Modular removable PU nosing: The front edge of consoles is the component which comes in frequent contact of the operator. The soft polyurethane edge is meant to prevent injury (accidental impact) to the operator during an emergency and it also reduces the contact stress. In case of damage to this edge the desk design shall permit quick & easy replacement within half an hour without taking any shutdowns or removal of the tabletops. UL Audit certified design feature of modular PU Edge: High-density poly-urethane moulded on industrial grade aluminium core to form 50mm deep tapered edge to be installed on worktop. In case of damage or wear, the edge shall be mechanically replaceable within 30 minutes without opening or removing the worktop. Extruded PU edging/PVC T-beading shall be deemed unacceptable. 4. Front and Back Shutters: The metal shutter tiles shall be made of minimum 1mm Thick MS sheet with Powder coated finish. 5. Side Legs: Extreme end side leg shall be made up of powder coated MS Pipe and MS sheet. To en-sure healthier air quality for the operators. 6. LCD Mounting Stand: Made up of MS Sheet with powder coated finish. 7. This includes space for housing two no. of embedded PC, 02 no. of FDMS & their power supply arrangement with proper ventilation. Approx. Dimension: 750 mm. (H) X 3300 mm. (L) X 2236 mm. (D).

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2	<p>Supply, Installation, testing & commissioning of New modular LCD mounting Stand for provision of 01 no. 55"/65"/85" VDU as per Detailed specifications and drawing is attached in Annexure- B</p> <p>This item includes:-</p> <ol style="list-style-type: none"> 1. Construction and Finish. <ol style="list-style-type: none"> 1.1 The structure shall be made of heavy-duty Mild Steel (MS) with a modular design to allow future customization and expansion. 1.2 All sheet metal parts shall be finished with a durable, black & white electrostatic powder coating to ensure corrosion resistance and long-term durability. 1.3 Wall or floor-to-wall fixing system shall be provided for enhanced stability. 2. Functional Features. <ol style="list-style-type: none"> 2.1 The system shall be a wall-mounted, self-contained unit capable of housing AV and IT equipment securely and ergonomically. 2.2 It shall support VESA standard mounting patterns, compatible with screen sizes from 55" to 85". 2.3 The structure shall include adjustable screen mounting brackets to set the display at the required operational height. 2.4 A dedicated cable management path shall be integrated, allowing seamless routing of cables from lower to upper compartments, maintaining a clean installation. 2.5 The unit shall include: <ol style="list-style-type: none"> 2.5.1 4 Nos. of 3U, 19" rack guides (depth 450 mm) for vertical mounting of IT or AV components. 2.5.2 A storage shelf for keyboard and mouse. 2.5.3 An integrated power bar module for electrical connections. 2.5.4 Secure compartments for tower or compact PC installations (left/right-handed), with maximum device space: 499 mm. × 465 mm. × 269 mm. 3. Ventilation <ol style="list-style-type: none"> 3.1 The enclosure shall be designed for natural convection cooling, ensuring efficient passive heat dissipation without the need for mechanical fans.
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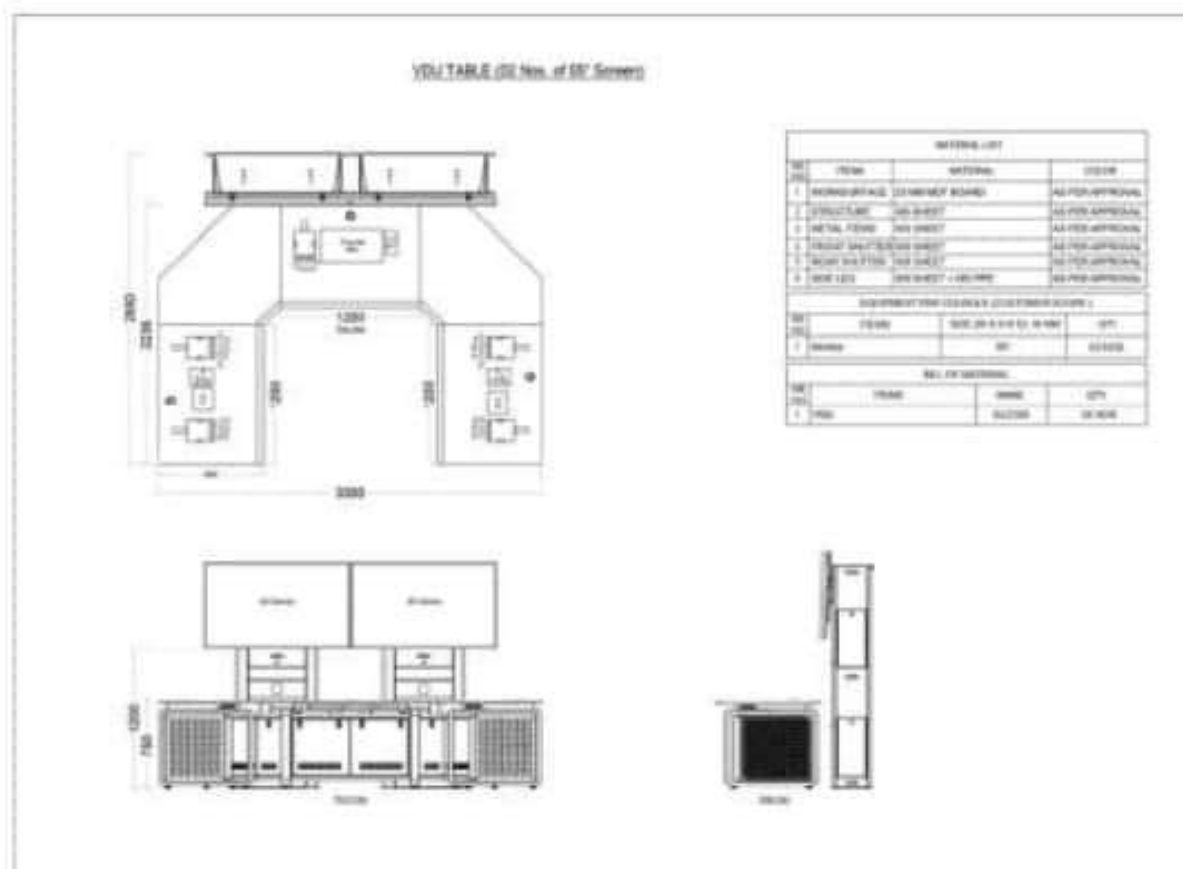
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Annexure-B**VDU Table (02 Nos. of 55 inch screen).**

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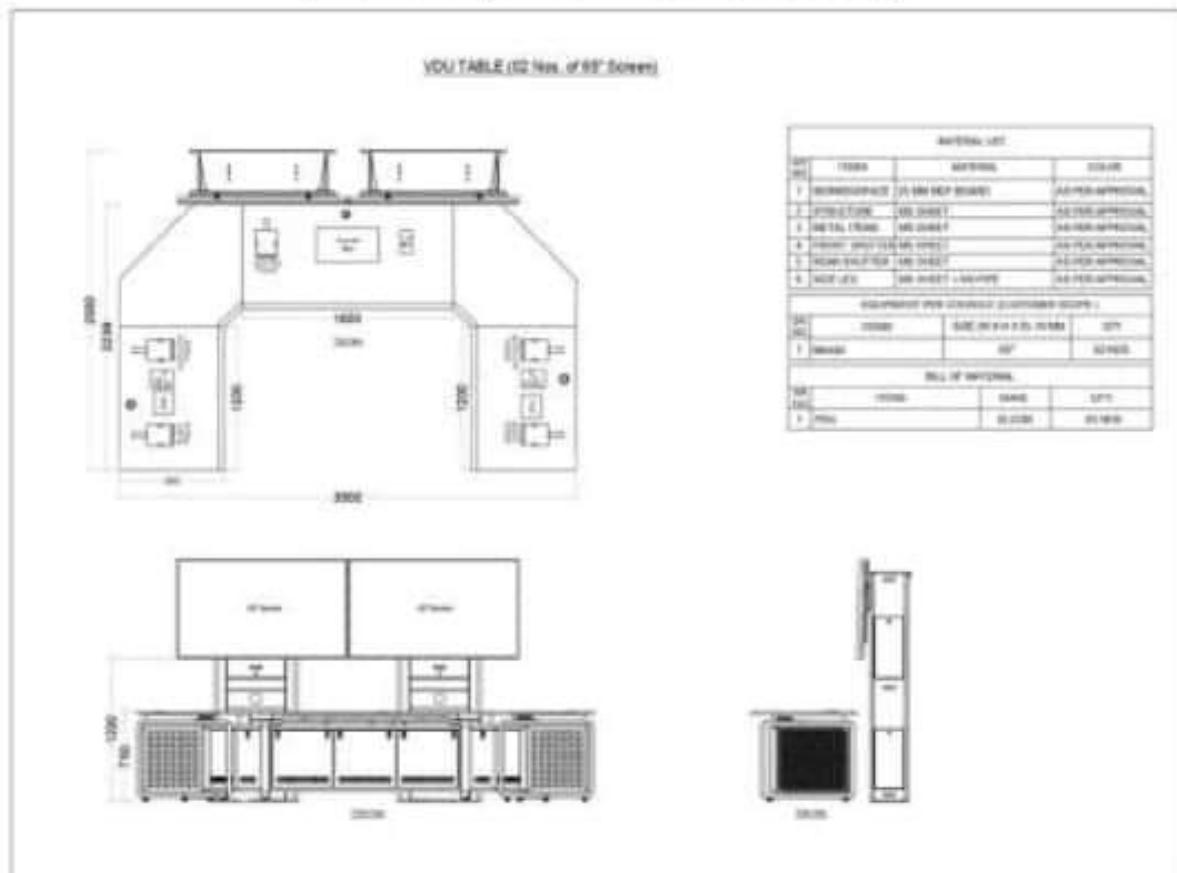
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VDU Table (02 Nos. of 65 inch screen).

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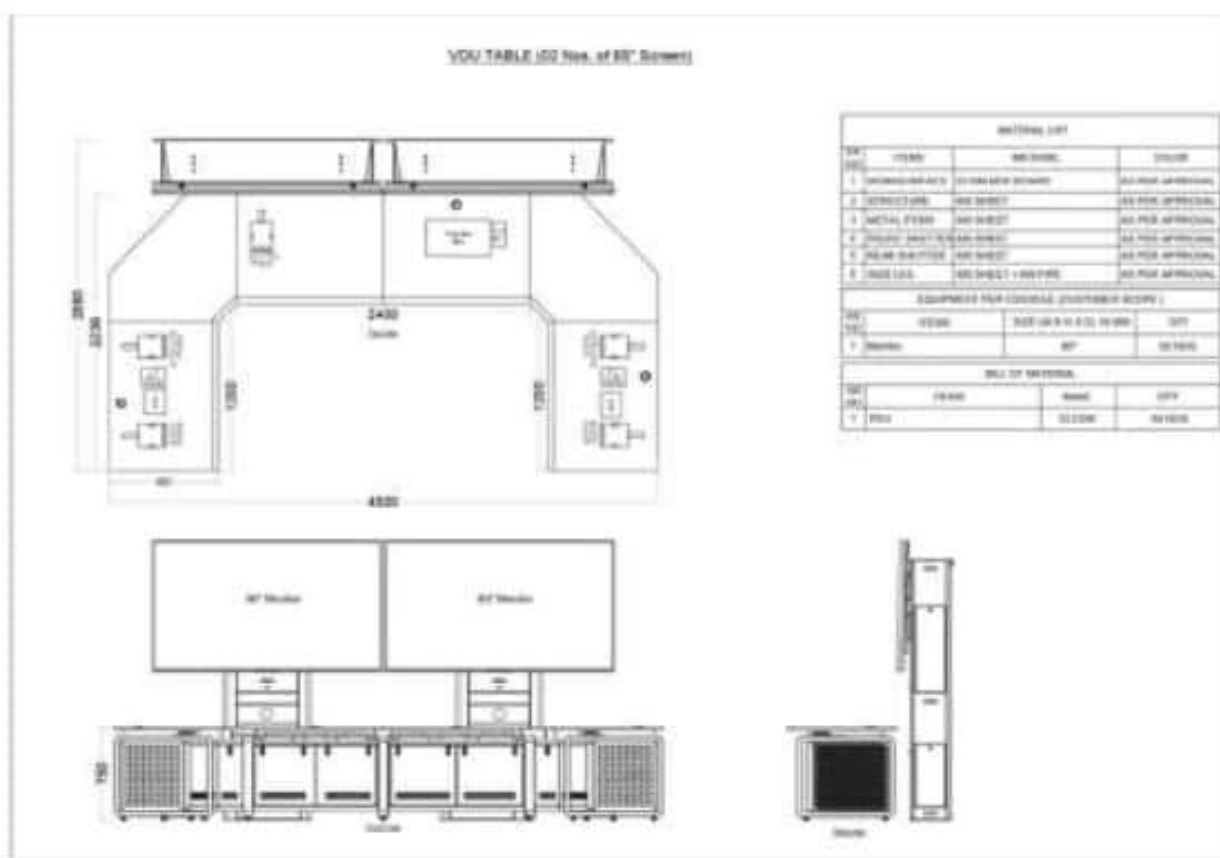
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VDU Table (02 Nos. of 85 inch screen).

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CHAPTER - 11 :**Apparatus case, outdoor installation, Fuses, ARA Terminal, Hylam Sheet, Phenolic Laminated sheets etc.**

SN	Description	Unit	Rate
1101	Supply of full size apparatus case (GKP type) (as per Drawing No. SW SK NO. 4/90 & other applicable GKP SW Drawing). This includes supply of a location box (GKP type) with 'E' type lock & key, fitted on the location door on both side, E Type lock (ward No. will be specified by Engineer-in-Charge) as per RDSO Drg. No. SA-3376 and Key to Drg. No. SA-3377 as per RDSO Drawing No. S-11500. Inspection: RITES/Consignee.	No.	17,543.00
1102	Casting, concreting and curing of concrete foundation (in ratio 1:3:6), erection and installation of full size apparatus case as per Drg. No. S&T/C-6/98(NKG). This includes the cost of all materials required for fixing holding down bolts, casting, concreting. Note: Bolts, nuts and washers, bitumen compound to be supplied by contractor and bitumen compound to be used in between apparatus case and foundation. This also includes the bottom of apparatus cases filled with sand and the outside covered with masonry work and neat cement plastering. Note: Painting the apparatus case inside and outside with one coat of red oxide, two coats of aluminium paints outside and white paint inside.	No.	13,705.00
1103	Fixing by slotted angle, wiring of terminal strips, hylam strip, relays, fuses with base, fixing of HDHMR shelves for full size apparatus case with Termination & Earthing of cables and wiring with lettering both inside and outside as required including supply of slotted angles, ferrules for marking and miscellaneous materials per location to be supplied by contractor (all materials except Wires, relay, terminal strips, Bakelite strip, fuses with base and HDHMR shelves to be supplied by the contractor). It includes letter painting both inside and outside as per ER practice. NB- Multi strand cables and power cable to be terminated with proper lugs and required buss bar etc. to be supplied by the contractor. Inspection: Consignee.	No.	6,089.00

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1104	Supply of half size apparatus case (GKP type) (As per GKP type Drawing No.SE/FE/2004/21 & other applicable GKP SW Drawing). This includes supply of a location box (GKP type) with 'E' type lock & key, fitted on the location door on both side, E Type lock (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA-3376 and Key to Drg. No. SA-3377 as per RDSO drawing No. S-11500. Inspection: RITES/Consignee.	No.	9,908.00
1105	Casting, concreting and curing of concrete foundation (in ratio 1:3:6), erection and installation of Half size apparatus case as per Drg. No. RE/S&T/SIG/TENDER/SK/8/85). This includes the cost of all materials required for fixing holding down bolts, casting, concreting. Note: Bolts, nuts and washers, bitumen compound to be supplied by contractor and bitumen compound to be used in between apparatus case and foundation. This also includes the bottom of apparatus cases filled with sand and the outside covered with masonry work and neat cement plastering. Note: painting the apparatus case inside and outside with one coat of red oxide, two coats of aluminium paints outside and white paint inside.	No.	10,498.00
1106	Fixing by slotted angle, wiring of terminal strips, hylam strip, relays, fuses with base, fixing of HDHMR shelves for half size apparatus case with Termination & Earthing of cables and wiring with lettering both inside and outside as required including supply of slotted angles, ferrules for marking and miscellaneous materials per location to be supplied by contractor. (all materials except wires, relay, terminal strips, Bakelite strip, fuses with base and HDHMR shelves to be supplied by the contractor) . It includes letter painting both inside and outside as per ER practice. NB- Multi strand cables and power cable to be terminated with proper lugs and required buss bar etc. to be supplied by the contractor. Inspection: Consignee.	No.	4,458.00
1107	Supply of HDHMR (High Density, High Moisture Resistance) Shelf for Full Location Box Size 950 x 400 x 25 mm. Inspection: RITES/Consignee.	No.	825.00
1108	Supply of HDHMR (High Density, High Moisture Resistance) Shelf for Half Location Box Size 450 x 400 x 25 mm. Inspection:- RITES/Consignee.	No.	413.00

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1109	Supply of Phenolic laminated Sheet/Hylam sheet, grade P3 in standard size of 1220 X 1220 x 10 mm. as per Spec. No. IS 2036 of 1995 or latest. Test report of manufacture to be supplied. Inspection: RITES/Consignee.	No.	5,552.00
1110	Alteration/modification in the existing location boxes (full size), fixing of equipment's, cable insertion, termination, wiring, testing & commissioning, two coat painting, lettering to suit the circuits as per approved wiring diagrams. This includes filling with sand and plastering the same.	No.	3,507.00
1111	Alteration/modification in the existing location boxes (Half size), fixing of equipment's, cable insertion, termination, wiring, testing & commissioning, two coat painting, lettering to suit the circuits as per approved wiring diagrams. This includes filling with sand and plastering the same.	No.	2,026.00
1112	Dismantling of the location box including all its accessories & concrete foundation.	No.	820.00
1113	Painting of existing FULL SIZE apparatus cases without disturbing the terminations and equipments inside. The work involves scraping of old paint, applying two coats of Aluminium paint outside & two coats of white paint inside apparatus cases, painting of termination, equipment and number particulars on apparatus cases as instructed by Railway representative at site (Paints and all other miscellaneous materials required for the work shall be supplied by the Contractor) Note: Item applicable for alterations and maintenance works.	No.	1,774.00
1114	Painting of existing HALF SIZE apparatus cases without disturbing the terminations and equipments inside. The work involves scraping of old paint, applying two coats of Aluminium paint outside & two coats of white paint inside apparatus cases, painting of termination, equipment and number particulars on apparatus cases as instructed by Railway representative at site. (Paints and all other miscellaneous materials required for the work shall be supplied by the Contractor) Note: Item applicable for alterations and maintenance works.	No.	1,696.00
1115	Supply of Fencing frame for ring earth area , location box and other S&T premises. (Height of fence would be of 1.5 m) Inspection: Consignee.	Mtr.	2,997.00

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