

CAMPUS HT INSTALLATION & ADMN. OFFICE MV INSTALLATION

| Sl.No | Particulars | Specification | Unit | Quantity | Unit Rate in words & figures | Amount in Rs |
|----------|--|---|------|----------|------------------------------|--------------|
| I | HT SIDE | | | | | |
| 1 | Supply of one number In door type 11 KV VCB, 3 Panel set having incomer panel with CT & PT, Earth switch & Earthing Interlock and Shunt Trip, overcurrent and earth fault relays, electrically operated, draw out type with HT Metering facility and 2 number HT SFU panel as out going. Bus bars and support Insulators etc. complete conforming to relevent IS., The switch should have type I test certificate of CPRI. The panel should have provision for adding further panel cubicle. (Make: Kirloskar/ GE/ ABB) | *Rated KV: 12 *Insulation Level 28/75 KV *Rated Current 630 A *Breaking Capacity 26.2 KA 3second rating 26.2 KA *Closing tripping coil voltage 24 V DC *Spring Charging motor 240 V AC *Conforms to IEC 60298/IS 3427, IEC 60694/IS12729 | No | 1 | | |
| 2 | Supply of one number In door type 11 KV SFU Panel set having , Earth switch & Earthing Interlock and Shunt Trip, complete conforming to relevent IS.,The switch should have type I test certificate of CPRI. The panel should have provision for adding further panel cubicle. (Make: Kirloskar/ GE/ ABB) | *Rated KV: 12 *Insulation Level 28/75 KV *Rated Current 630 A *Breaking Capacity 26.2 KA 3second rating 26.2 KA *Closing tripping coil voltage 24 V DC *Spring Charging motor 240 V AC *Conforms to IEC 60298/IS 3427, IEC 60694/IS12729 | Nos | 2 | | |
| 3 | Installation completely , testing and commissioning of the indoor door type 11 KV, 3 panel set with metering supplied at site including leading the same to the place of erection. | | No | 1 | | |
| 4 | Installation completely , testing and commissioning of the indoor door type II KV 1 panel SFU supplied at site including leading the same to the place of erection. | | Nos | 2 | | |
| 5 | Supply at site installation, testing and commissioning of TOD meter for KSEB, all prewired from CT and PT etc. including supply and fixing of TOD meter testing of meter and CT/PT at TMR Division of KSEB, with necessary armoured control cables etc. complete as per KSEB / inspectorate recommendations. (Make: L&T) | | No | 1 | | |

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| 6 | Supply at site of 11KV, 3 x 150 sq.mm XLPE, PVC insulated , armoured HT UG cable, confirming to IS specifications as amended upto date (From Metering to USS). (Make: Finolex/ Nicco/ Universal/ Gloster) | | Mtr | 300 | | |
| 7 | Supply at site of 11KV, 3 x 300 sq.mm XLPE, PVC insulated, armoured HT UG cable, confirming to IS specifications as amended upto date (From RMU to Metering) (Make: Finolex/ Nicco/ Universal/ Gloster) | | Mtr | 50 | | |
| 8 | Laying, testing and commissioning of 11KV, 3 x 150 /300sq.mm XLPE, PVC insulated, armoured HT UG cable, confirming to IS specifications as amended upto date through wall/ floor/ cable trenches already provided etc including cost of clamping etc . | | Mtr | 350 | | |
| 9 | Supply at site and providing indoor end termination of 3 x 150 sq.mm XLPE cable to the HT Switch and to the transformer including all materials required for firm joints as per standards. (Make: Raychem/ Mseal) | | Nos | 4 | | |
| 10 | Supply at site and providing indoor end termination of 3 x 300 sq.mm XLPE cable to the HT Switch and to the transformer including all materials required for firm joints as per standards. (Make: Raychem/ Mseal) | | No | 1 | | |
| 11 | Supply at site and providing outdoor end termination of 3 x 300 sq.mm XLPE Cable including all materials required for firm joint and connecting to the AB switch provided by KSEB as per standards. (Make: Raychem/ Mseal) | | No | 1 | | |
| 12 | Providing cable trench in ground as per standard for laying HT cables including excavation, sand cushioning protective covering using wire cut bricks and refilling the trenches etc, as required (75x75x100 cm) | | Mtr | 250 | | |

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| 13 | Installation completely , testing and commissioning of the 750 KVA, 11000/433 V, ONAN with OLTC transformers supplied at site including leading same to the place of erection. | | Nos | 2 | | |
| 14 | Supply and providing efficient plate earthing using 1200mm x 1200mm x 12.3 mm CI plate earth electrode conforming to IS: 3043 complete with necessary earth pit chamber. C.I cover, GI pipe, connections including filling the pit with charcoal and salt, including excavation, refilling and all connected civil works | | Nos | 10 | | |
| 15 | Supply and fixing giving end termination of the following copper strips for effective earthing of the system as per IS: 3043 through underground, cable tray etc as per site requirement. | | | | | |
| a | 32 x 6mm copper strips | | Mtr | 100 | | |
| b | 32 x 3mm copper strips | | Mtr | 200 | | |
| c | 25 x 3 mm copper strips | | Mtr | 750 | | |
| d | 25x 6 mm copper strips | | Mtr | 200 | | |
| e | 10 SWG copper | | Mtr | 1000 | | |

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| II | MV SIDE | | | | | |
| 1 | Design fabrication, supply, installation, erection testing and commissioning of the following cubicle type fully compartmentalised dust tight, vermine proof L.T. Switch boards fabricated out of 2.032mm thickness CRCA sheet for main panel and 1.626 mm thickness CRCA sheet for sub panels , powder coated as per standards and having appropriate rating busbars & earth bus and of approved shade. The busbars should be of suitably rated TPN Aluminium having the specified normal and short circuit capacities and should be insulated with heat shrinkable colour coded PVC sleeves and supported by DMC/ SMC pillar/ finger type busbar supports. Design and fabrication of the switch boards should be as per standards of State electrical ispectorate, K.S.E.B, and Bureau of Indian standards. (Cable entry according to site conditions) The panel should have provision and busbar to attach with the substation | | | | | |
| 1.1 | MAIN PANEL | | | | | |
| | <u>INCOMING SIDE -</u> | | | | | |
| | 1250 A .4 pole (EDO) ACB 3 No, Voltmeter ,ammeter,indicators as per scheme TPN Busbar as per ISS & scheme Low set earth fault relay 2 nos, Over voltage relay with PT 2 No,2 numbers Digital type 3 Phase multi function meter | ACB: - ICU=ICS=ICW=100%=50 KA one Sec,STATIC RELEASE for protection w4 No+ 4 NC auxilliary contacts with shunt and UV trip , anti closing prevention device with no volt coil 3 Overcurrent ,short circuit &E/F protection inbuilt..Overload settings 50-100 % and Short circuit setting 2 - 10 times,current limiting type utilization category A. current limiting type .setting provision in front. MCCB : - Static release, 50-100 % setting 35 KA . | No | 1 | | |
| | <u>OUT GOING</u> | | | | | |
| | 1000 A 4 pole (EDO) ACB 2 No 630 A 3 pole MCCB with front drive 2 numbers 400 A 3 pole MCCB with front drive 5 numbers. (Make: ACB/MCCB: L&T / GE / Siemens) | | | | | |
| 1.2 | MSSB | | | | | |
| | <u>INCOMING SIDE -</u> | | | | | |

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| | 1000 A .4 pole (EDO) ACB 3 No, 800 A 4 pole (EDO) ACB 2 No Voltmeter ammeter, indicators as per scheme TPN Busbar as per ISS & scheme Automation of the supply change over , starting stopping of generator etc using PLC relay of approved make with necessary Plug in relays contactors ,auto/manual switches. 4 numbers Digital type 3 Phase multy fuction meter (Make: ACB/MCCB: L&T / GE / Siemens) (PLC: Siemens / Delta) | ACB: - ICU=ICS=ICW=100%=50 KA one Sec,STATIC RLEASE for protection w4 No+ 4 NC auxilliary contacts with shunt and UV trip , anti closing prevention device with no volt coil 3 Overcurrent ,short circuit &E/F protection inbuilt..Overload settings 50-100 % and Short circuit setting 2 - 10 times,current limitting type utilization category A. current limitting type .setting provision in front. MCCB : - Static release, 50-100 % setting 35 KA . PLC : - 24 IP/OP | No | 1 | | |
| | <u>OUT GOING</u> | | | | | |
| | 400 A 3 pole MCCB with front drive 9 number | | | | | |
| 1.3 | Common Utility Panel | | | | | |
| | 400A TPN isolator -1 no. as incomer 125 A 3 pole MCCB with front drive 8 Numbers out goings 160 A TPN Isolator BS type, 1 no out goings. (Make: L&T / GE / Siemens) | Switch : -AC 23 utilisation catogery and as per IS 13703 / IEC 269 with FD kit complete and door interlock MCCB : - 50-100% setting | No | 1 | | |
| 1.4 | Sub panels | | | | | |
| | 400A TPN isolator -1 no. as incomer 125 A 3 pole MCCB with front drive 10 Numbers out goings (Make: L&T / GE / Siemens) | Switch : -AC 23 utilisation catogery and as per IS 13703 / IEC 269 with FD kit complete and door interlock MCCB : - 50-100% setting | No | 4 | | |
| 1.5 | APFC PANEL | | | | | |
| | Supply at site and installation of 300 KVAR automatic pauer factor control panel with following configurations as per scheme.25 KVAR for no load compensation | | | | | |
| | Voltage- 440V, 3 phase, 50 Hz | | | | | |
| | APFC Relay - Microprocessor based 12 step (Make: Beluk) | | | | | |
| | INCOMER 630 A TP MCCB - 1 NO. (Make: L&T / GE / Siemens) | | | | | |
| | switching - Capacitor duty sufficient rating contactors with MCB minimum 63 A with spare (TOTAL -12 NOS.) as per scheme | | | | | |
| | Capacitors - Heavy duty APP/MDXL type. (Make: Sprague / Mammaya) | | | | | |

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| | Panel construction - Using 1.62 mm crcs sheat powder coated ,double door construction, with auto-manual facility, ammeter, voltmeter etc. equipped with exhaust fan etc.(Refer scheme). | | No | 2 | | |
| 2 | Cable trays / Chequered plates etc. | | | | | |
| 2.1 | Supply & Erection of vertical / horizontal type M.S cable trays and cable supports fabricated out of M.S.angles(ISA) and M.S flats with sufficient width and spacing between successive cross members and supported at adequate spacing. The cable trays and supports shall be painted with 2 coats of Zinc chromate primer 2 coats of enamel paint. The design of the cable trays and details shall be got approved by the authorities. | | Kg | 3500 | | |
| 2.2 | Supply, fabrication and installation of cable trench covers using 6 mm thick MS chequered plates for covering cable trenches in switchboards room. | | M ² | 30 | | |
| 3 | CableLaying | | | | | |
| | Supply, Laying, testing and commissioning of the following Aluminium L.T.Cables (AYWY/ AYFY) through excavated trenches, built up Cable trenches, cable trays, hume pipes, including supply and fixing of clamps, nuts & bolts, identification tags route markers etc. required for clamping intervals as necessary. (Make: Finolex/ Universal/ Lap/ Gloster/ Nicco) | | | | | |
| 3.1 | 3.5 X 400 Sq.mm | | mtr | 700 | | |
| 3.2 | 3.5 X 300 Sq.mm | | mtr | 100 | | |
| 3.3 | 3.5 X 240 Sq.mm | | mtr | 100 | | |
| 3.4 | 3.5 X 185 Sq.mm | | mtr | 750 | | |

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| 3.5 | 3.5 X 150 Sq.mm | | mtr | 50 | | |
| 3.6 | 3.5 X 120 Sq.mm | | mtr | 50 | | |
| 3.7 | 3.5 X 95Sq.mm | | mtr | 50 | | |
| 3.8 | 3.5 X 70 Sq.mm | | mtr | 100 | | |
| 3.9 | 3.5 X 50 Sq.mm | | mtr | 10 | | |
| 3.10 | 3.5 X 35 Sq.mm | | mtr | 10 | | |
| 3.11 | 3.5 X 25Sq.mm | | mtr | 1000 | | |
| 3.12 | 4 X 16Sq.mm | | mtr | 1250 | | |
| 3.13 | 4. X 10Sq.mm | | mtr | 1250 | | |
| 3.14 | 4. X 6Sq.mm | | mtr | 200 | | |
| 3.15 | 4 x 2.5Sq mm copper UG cable | | mtr | 250 | | |
| 3.16 | 2 x 2.5Sq mm copper UG cable | | mtr | 250 | | |
| 3.17 | 6 x 2.5Sq mm copper UG cable | | mtr | 100 | | |

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| 4.0 | Supply of all materials and terminations of the following PVAPVC (AYWY or AYFY) Aluminium L.T. cables using simple compression type cadmium plated brass cable glands, suitable crimped Type cable lugs, cable identifications tags and including gland earthing using copper conductor of adequate size, AI - Cu strip for termination of cables etc. | | | | | |
| 4.1 | 3.5 X /400/300/240Sq.mm | | No | 24 | | |
| 4.2 | 3.5 X 185/150/120 Sq.mm | | No | 24 | | |
| 4.3 | 3.5 X 95/70/50Sq.mm | | No | 24 | | |
| 4.4 | 3.5 X 35/25sq.mm | | No | 24 | | |
| 4.5 | 4 X 16/10/ 6 Sq.mm | | No | 99 | | |
| 4.6 | 6 X 2.5 Sq.mm | | No | 8 | | |
| 4.7 | 4 X 2.5 Sq.mm | | No | 24 | | |
| 4.8 | 2 x 2.5Sq mm | | No | 24 | | |
| 5.0 | Miscellaneous | | | | | |
| 5.1 | Supply, installation & wiring of emergency trip push button station for HT SFU including the cost of all materials.. | | No | 5 | | |
| 5.2 | Supply of electrical grade rubber mat suitable for H.T.panels | | M2 | 40 | | |
| 5.3 | Supply and installation of L.T / H.T. sign boards | | No | 5 | | |

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| 5.4 | Supply and installation of co2 fire extinguisher 4.5 Kg | | No | 4 | | |
| 5.5 | Supply and installation of artificial respiration chart | | No | 1 | | |
| 6.0 | Lightning protection. | | | | | |
| 6.1 | Supply of all materials and providing pipe earth station with 2500 mm long, 38 mm dia. G.I. Pipe, earthing strips, clamps, funnel, terminal electrodes etc. excavation in all classes of soil, fitting with alternate layers of charcoal and salt and back filling, construction of earth pit inspection chamber and heavy duty C.I chequered plate for earth pit inspection chamber cover. The earthing station should confirm to IS 3043/ 1987. | | No | 5 | | |
| 6.2 | Supply and Laying/ fixing of GI Strip type lightning conductor 25 x 3 mm size with porcelin insulators. | | Mtr | 1000 | | |
| 6.3 | Labour charges for fixing/Laying of GI Strip lightning conductor 25 x 6 mm size with porcelin insulators and connection to 25 x 3 mm GI strip and earth pipe and providing test link etc. as per standards. | | Mtr | 100 | | |
| III | DISTRIBUTION BOARDS | | | | | |
| | Supply all materials and installation of double cover 6 way TPN MCCB VDB as SSB for LDB inclusive of copper/ brass busbar, neutral link 125 A 4 P MCCB as incomer 6 no 40 A TP MCB as out goings etc. in recess including cutting holes on the wall, making good the damages colour washing etc as required. (Make: Legrand/ Schneider/ GE) | Ingress Protection class : IP 42 | No | 24 | | |
| VI | RISING MAIN | | | | | |

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| | Design supply at site installation testing and commissioning of sandwich type bus trunking rising main • Range shall be suitable for horizontal and riser application and should be complete with feeder/plug in and all accessories like expansion joints, reducers, end terminal covers etc. as recommended by the manufacturers. Standard length of bus bar shall not be less than 3000mm & plug in opening shall be provided at regular interval of 610mm with safety shutters. Special length shall be designed to connect the end piece and some special requirements. • Plug in length shall have a feasibility of having plug outlets on both sides. • The Plug in Busway shall be suitable for vertical and/or horizontal installation. (Make: GE-Wavepro LT / Legrand - Zucchini / Siemens - Sivacon) | 690 V ,3 phase with 100 % neutral 50 % PE conductor in a aluminium housing . Suitable for distribution application from 100 A -400 A in a single run Aluminium conductor. Operational voltage 690 V, insulation voltage 1000 V .IP 54.IEC 60439-1&2, IEC 60529. Short time with stand current 20 times for 500 A & 50 times for 1000 A. (Specification attached seperate) | | | | |
| 1.0 | 1000 A Feeder | | Mtr | 40 | | |
| 2.0 | 1000 A Flange with joint | | No | 2 | | |
| 3.0 | 1000 A elbow/bend with joint | | No | 3 | | |
| V | INSTALLATION OF DG SETS | | | | | |
| 1.0 | Installation of 1no. 500 KVA, 3phase 415V 50 Hz water cooled DG set with acoustic enclosure comprising Engine, Alternator, Fuel tank, Battery, Antivibration pads control panels etc as per standards. | | No | 1 | | |
| 2.0 | Installation of 1no.250 KVA, 3phase 415V 50 Hz water cooled DG set with acoustic enclosure comprising Engine, Alternator, Fuel tank, Battery, Antivibration pads control panels etc as per standards. | | | 1 | | |

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| 3.0 | Supply all materials and providing exhaust piping suitable for 500 KVA dg set including aluminium cladding for full length | | Mtr | 50 | | |
| 4.0 | Supply all materials and providing exhaust piping suitable for 250 KVA DG set including aluminium cladding for full length | | Mtr | 50 | | |
| VI | STATUTORY APPROVAL | | | | | |
| 1 | Preparation, submission of drawings to Electrical inspectorate and obtaining approval, arranging inspection for entire installation and other utilities including Generator, obtaining sanction orders for the electrical installation, complete. Including all incidental expenses except the fees payable to the electrical inspectorate with valid receipts from the authorities. | | Job | 1 | | |
| 2 | Preparation, submission of drawings and applications for the installation and service connection to KSEB and obtaining Power allocation, sanction and energising of the whole installation, including obtaining sanction from the authorities complete Including providing necessary assistance to the client for obtaining sanctions. | | Job | 1 | | |
| | Total for Electrical works | | | | | |