**Sheet1**

**SBI INFRA MANAGEMENT SOLUTIONS PVT LTD (SBIMS):**

**WHOLLY OWNED SUBSIDIARY OF SBI**

**CIRCLE OFFICE, PATNA**

**SCHEDULE OF WORKS: ELECTRICAL WORKS**

**PROJECT: KURUA BRANCH**

**UNDER RBO-I DEOGHAR, AO DEOGHAR**

20/05/2019

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>RATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>ELECTRICAL</td>
<td>Mtr.</td>
<td>60</td>
<td>60</td>
<td>3,600</td>
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</tbody>
</table>

**SUPPLY, LAYING, LUGGING, DRESSING, GLANDING, FINISHING, TESTING AND COMMISSIONING OF POWER CABLE:** Following 1.1KV grade fire resistant A2XFY XLPE armored aluminium conductor cable with one no. 10 SWG GI wire, laying of the cable by making 300MMX800MM cable trench with bricks and sand protection, partly through 45MM GI Pipe and partly on wall/column including supply and fixing with 300mm apart MS clamps/galvanized bar saddles and double compression type brass cable gland Dowel make along with rubber rings for dust and moisture proof entry of the cable and finishing the ends by crimping method. It will be contractors responsibility to make the necessary arrangements for obtaining electrical connection for the bank, i.e liaising with electricity board. Make (NICCO/RR/POLYCAB/UNIVERSAL/MESCAB)

**MAIN INCOMING SOURCE PANEL (MISP):**

Supply, installation, testing and commissioning of main incoming (MIP) Panel suitable for wall/floor mounted indoor type, air insulated, totally enclosed vermin-proof (IP 42), dead front, cubic type, 2 cm thick sheet steel enclosure use on 415 V, 3 Ph., 4 wire, 50 Hz. A.C. system, instrument panel, CTs, incoming and outgoing cable compartment. The Panel shall be complete with switches as per site requirement, interconnection, G.I. earth busbar of adequate size covering the total length of switch board with drilled holes, G.I. bolts, nuts, washers etc. as directed by E-I-C. The cubic should be painted with two coats of light grey synthetic enamel paint over two coats of zinc chromate primer. The complete fabrication, construction shall be done as per the site condition and conforming to the relevant IS. Name plate of Panels Danger Board, incoming and outgoing feeders with Ampere rating of switches are to be fixed up on front door of panel above or below the respective switches. Approval of Manufacturer’s drawings from E-I-C.

The Panel consists of the following

**NCOMING:**

1. No. : 415V, 125A 4P MCCB (36 KA).
3. No.: Digital Multi Function Meter (MFM) for Current, Voltage, Frequency, Power.
4. Nos.: LED Phase indicating lamps.
5. Nos.: Suitable CTs(200/5)
6. PVC sleeved TPN Tinned Copper Busbar
7. G.I. EARTH BUSBAR

**OUTGOING**

- **Termination I:** (To be connected with C.O.)
  - 4 Nos. 32-63A (10 KA) DP MCB for UPS supply, BM AC, System AC & LDBs etc.
  - 1 No.  63A (25KA) 4P MCCB for ATM/LOBBY
  - 1 no. 63A (10 KA) TPN MCB.
- **Termination II:** (Not to be connected with C.O.)
  - 1 Nos. 63A (25KA) 4P MCCB for ACDB

**UPS INCOMING DB:**

Supply of all required materials and fixing of input UPS box (Company made) having provision of the following arrangement complete with all respects per the direction of engineer in charge

**INCOMING:**

1. No. 63A (10KA) DP MCB (or 2 No. 4 Pole 40A 10KA MCB if UPS is 3 Phase)

**UPS OUTGOING DB:**

Supply of all required materials and fixing of output UPS box (Company made) having provision of the following arrangement complete with all respects per the direction of engineer in charge

**INCOMING:**

1. No. 63 A DP MCB

**OUTGOING:**

3 Nos. 40A (10KA) DP MCCB

**ACDB / RAW POWER DB / LIGHT DB / COMPUTER DB**

Supply and installation of following metallic double door MCB Distribution Board with MCB having breaking capacity of 10 KA (minimum) complete with busbar, interconnection, painting mounted on flat iron frame on wall/flushed with finished wall by chase cutting, mending good to original finish painting etc. as required. Name plate & number of DBs are to be fixed up on front door of DBs for their identification. (MCB - C SERIES) DB shall be of the same make of mcb

**NCOMING**

1. No. : 415V 63A 10KA FP MCCB
2. 2 Nos. 240V 32A 10 KA SP MCB, 3 Nos. 240V 25A 10 KA SP MCB

**OUTGOING**

- **ACDB:** Consumer unit TPN MCB DB complete with busbar and the following MCBs.
  - **MCB INCOMING:**
    - 1 No. 240V 10A SP MCB
  - **MCB OUTGOING:**
    - 12 Nos. 240V 10A to 16A 10 KA SP MCB

**CDB / COMPUTER DISTRIBUTION BOARD (CDB):**

Supply and installation of following metallic double door MCB distribution board with RCBO of 100mA sensitivity. SPN 8 way MCB DB complete with bus bar and the following RCBO

**NCOMING**

1. No. 240V 40A 10KA 4P MCB

**OUTGOING**

10 no. 240V 10A SP MCB
### SUBMAIN WIRING

Supply & laying of submain wiring with following sizes 1100 V grade, single core, FRLS PVC insulated multi stranded copper conductor wire (IS:694) in pre-laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>With 4 nos. 10 Sq.mm + 1 nos. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire from Main panel to ACDBs.</td>
<td>Mtr</td>
<td>20</td>
</tr>
<tr>
<td>(b)</td>
<td>With 2 nos. 6 Sq.mm + 1 nos. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire from Main panel to UPS Incoming DB/UPS Outgoing to UPS O/G DB/LDB/PODB/CDB</td>
<td>Mtr</td>
<td>70</td>
</tr>
<tr>
<td>(c)</td>
<td>With 4 nos. 6 Sq.mm + 1 nos. 2.5 Sq.mm. (green colour for earth) PVC insulated copper wire from Main panel to UPS Incoming DB/UPS if UPS is three phase) RPDB/LDB</td>
<td>Mtr</td>
<td>20</td>
</tr>
</tbody>
</table>

### A) COMPUTER SOCKET OUTLET WITH WIRING

Computer socket outlet cluster comprising the following

- 1 No. 16A modular type common controlling switch with indicator on table top with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. (green colour for earth) PVC insulated copper wire in pre-laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from CDB to Computer outlet.

### B) COMPUTER SOCKET OUTLET AND ITS WIRING

Computer socket outlet cluster comprising the following

- 1 No. 16A modular type common controlling switch with indicator on table top with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. (green colour for earth) PVC insulated copper wire in pre-laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from CDB to Computer outlet.

### C) RAW POWER SOCKET OUTLET AND ITS WIRING

Computer socket outlet cluster comprising the following

- 1 No. 16A modular type common controlling switch with indicator on table top with 2 Nos. 2.5 Sq.mm. + 1 x 1.5 Sq.mm. (green colour for earth) PVC insulated copper wire in pre-laid (as per ISI) M.S. conduit including interconnection, painting etc. as required to be completed in all respect from CDB to Computer outlet.

### D) COPPER PLATE EARTHING

Supply of material and installation of earth electrode made out of 60mm dia class B G.I. pipe of 2.5 metre long with arrangements for fitting/termination of copper wire with G.I. nut bolts, washers and 60x60x3 mm size copper plate including cost of charcoal salt and good quality soil, water pouring arrangements, brick masonry enclosure on top with removable CI cover and complete with labour for excavation of pit conforming to IS:904/1987 and as per direction of Engineer-in-charge.

### B. SITC of OBO Betterman/JK/JEF eco safe/ make earthing system – UL Listed Earth Electrode - Copper bonded low carbon steel electrode, coating 250 microns

- Tested as per IEC 62561-2
- Meets the requirement of IS 3043 and IEC 60364-5-54

### 13. Supply and laying of 6 SWG Cu cotton coated wire in 20mm dia rigid PVC conduit for earthing From the existing earth pit to the Main panel/UPS comprising of a bus bar of 3x25x180mm cu strip.

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<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of 6 SWG Cu cotton coated wire in 20mm dia rigid PVC conduit for earthing</td>
<td>Mtr</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
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<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITC of Earth distribution Box (Bus Bar Station) to be installed in the branch near Main Panel.</td>
<td>SET</td>
<td>1</td>
</tr>
</tbody>
</table>
POINT WIRING
Point wiring with 1100 V grade 3 nos. single core 1.5 sq.mm. and 1 for common earth by looping method) PVC insulated stranded copper conductor wire (IS:694) through suitable size M.S. conduit (ISI marked embossed on conduit surface) by thred cutting, complete with junction box, circular box, elbows, bends, couplers and other accessories on surface above false ceiling or concealed by chase cutting on wall from light & fan switch board to light, fan & 6A socket outlet on the same switch board or separately mounted switch board. The work includes supply and fixing of all materials such as modular type 6A switch for light and fan point, 6A 2/3 pin shuttered socket outlet with switch in each switch board, 3 plate ceiling rose / angle or batten holder etc. as required. The point wiring also includes circuit wiring with 1100 V grade 2 nos. single core 2.5 sq.mm. + 1 no. single core 1.5 sq.mm. PVC insulated stranded copper conductor cable (IS:694) through suitable size M.S. conduit as described above from DB to switch board, interconnection, mending good all damages to original finish, painting etc.

1 Light control by 1 switch
2 Light control by 1 switch
3 Light control by 1 switch
Slow sign board wiring
 Ceiling fan point
 Ceiling fan point with supply and fixing of Electronic Regulator (2 module step 120 watt rating)
 IP6A 2/3 pin modular socket with switch on separate switch board outside the Cash Room complete with wiring. Suitable Top to be provided for supply to Cash Room - RECORD ROOM.
Wall fan point
3 pin 16A modular socket with switch in each board

PART A - SUPPLY AND FITTING OF ELECTRICAL FITTINGS
18 Supply & Fixing of 36W-2x2 LED Panel light recessed/ surface mounted of Syska / Philips / Wipro / CG make complete with all accessories. Syska cat no. SSK-PAB-6060-B of lumens >3000.
19 Supply & fitting of 18W LED T5 Batten fitting Syska / Philips / Wipro / CG complete with all respect.
20 Supply & fixing of 25W LED Steet Light with suitable mounting pipe & CFL Lamp etc. of Syska / Philips / Wipro / CG / Bajaj complete in all respect
21 Supply & fixing of 5W LED Bulb Syska / Philips / Wipro / CG / Bajaj in UPS Toilets complete with all respect.
22 Supply & fixing of wall fan complete with all respect.
Make: Polar, Orient, CG, Havells, Usha,
23 BFC of 1400MM ceiling fan Crompton/bajaj/orient White.
24 BFC of 9 dia 230V,1400 rpm exhaust fan as in toilets, ups room, toilets etc.
Make: crompton/bajaj/alstom/almonard)
25 BFC of LED T5W light & fixture recessed type with interconnection and fixing arrangements as described above from DB to switch board, interconnection, mending good all damages to original finish, painting etc.
26 Double pole MCB DB in steel sheet enclosure with Incoming: 1 no. 25A DP ELCB, Outgoing: 2 no. 10A SPN MCB complete with interconnection, timer(QT-31) & contactor (2P 25A) for glow sign board and Street Light of branch & lobby (LAT/ABB/SCHNEIDER/legrand)

PART B - SUPPLY AND FITTING OF ELECTRICAL CABLING
27 Supplying and installation of switch 24 ports 10/100 BASE-TX ports, (D link) managed as approved by the Bank. Make: CISCO)
28 Supply of 2 mtr. Long E-CAT 6 PATCH CHORD (Make: D-LINK, AMP, HCL, Legrand)

INTERNET SOCKET WITH DATA CABLE::
BFC of modular RJ-45 internet sockets with data penetrating box (modular type) including all inter-connections as required with front plate D link or equivalent make approved by the bank connections etc as required all complete job as per the standard specification and direction of the bank for BM, SWO, A/C, FO. Along with supply and wiring of CAT6 DATA cable wiring in recessed surface/ recessed PVC conduit pipe connection etc as required all complete job as per the standard specification and direction of the bank. D link or equivalent

Supply & installation of 9U Rack with power supply arrangement, ventilation fan, mounting racks etc. complete with all accessories.

The rate quoted shall be firm and shall include all costs, allowances, Charges, levies, Royalties, Chess transportation etc. but excluding GST as applicable which will be reimbursed by the Bank as per Government norms prevailing from time to time.

GRAND TOTAL (Excluding GST)
The work must be guaranteed for a period of 12 months for its satisfactory performance from the date of completion and all defects cropping up within this period must be rectified at contractor’s cost immediately. Contractors must visit the site before submitting their quotations.

1. Earthing test report, Meggar test report & test certificates for the cables will be provided to the Electrical Engineer.

2. Measurement sheet for the work done, load calculation sheet, QA drawing for Main panel. The CONTRACTOR SHOULD SUBMIT THE BUILTUP SLD OF PANEL, SLD OF DIFFERENT DBS TO DIFFERENT SWITCHBOARDS WITH NUMBERING, SLD OF DATARACK TO DIFFERENT I/O POINTS WITH NUMBERING, TELE-KRONE BOX TO DIFFERENT TELE.POINTS WITH NUMBERING, ETC. AFTER EXECUTION OF THE BRANCH. – 2 SETS OF COPIES – 1 WITH LAMINATION. All work to be carried without hampering banking operations. Dismantling wherever required in scope of vendor.

3. Work completion certificate including required dismantling work if any will be provided by the branch manager.

4. All cable and wire terminations must be proper with suitable lugging. There must not be any loose wiring/cabling. There should not be any jointing in the cables/wires. All wiring accessories should be explosion proof only.

5. All additional inter-connections within the main panel and TPN SFU has been included in the rate of main panel.

6. All cables except the ones mentioned separately in the estimation have been included in their relevant sections.

7. Proper load distribution is to be done by the vendor. Load variation over 10% will be unacceptable.

8. All cables except the ones mentioned separately in the estimation have been included in their relevant sections.

9. Distance between power and electronic earthings must be at least 3.5 Mtr. In electrical room, ups room, there must be one emergency light point other than raw light point.

10. Earthing test report, Meggar test report & test certificates for the cables will be provided to the Electrical Engineer.

11. Measurement sheet for the work done, load calculation sheet, QA drawing for Main panel. The CONTRACTOR SHOULD SUBMIT THE BUILTUP SLD OF PANEL, SLD OF DIFFERENT DBS TO DIFFERENT SWITCHBOARDS WITH NUMBERING, SLD OF DATARACK TO DIFFERENT I/O POINTS WITH NUMBERING, TELE-KRONE BOX TO DIFFERENT TELE.POINTS WITH NUMBERING, ETC. AFTER EXECUTION OF THE BRANCH. – 2 SETS OF COPIES – 1 WITH LAMINATION. All work to be carried without hampering banking operations. Dismantling wherever required in scope of vendor.

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**RECOMMENDED MANUFACTURERS**

### CONDUIT

- PVC Rigid: BEC, AKG, Precision
- GI Flexible: BEC, NIC, AKG
- PVC Casings/Conduits: BEC, NIC, AKG
- Galvanized Steel: BEC, NIC, AKG

### CABLES & WIRES

- 11KV AL: NIC, Havells
- 1100V PVC/XLPE Insulated: Havells, Polycab, Finolex
- PVC Insulated CU: Havells, Polycab, Finolex
- Telephone: Finolex, Delton, Bonton

### PROTECTIVE DEVICE

- TPN & SPN SFU with HRC Fuses: L&T, Schneider, ABB, GE
- MCCB/MCB/MB/MCB DB/RCBO/RCCB/ACB/ELCB: L&T, Siemens, ABB, GE
- Change-Over-Switch: L&T, Cashpl, Socomec
- CT: L&T, Kaypee, Kuppa, Siemens

### SWITCHES & SOCKETS

- 6A/16A Switches, Socket, Telecom/LAN Socket, Electronic Regulator, Dimmer: North-West, LeGRAND, L&T
- ON/OFF Selector Switches: Siemens, L&T, Kaypee, Crompton, GEC
- Metal Clad Socket & Plug: Siemens, L&T, LeGRAND
- Buzzer/Call Bell: Bajaj, Anchor, SSK
- Indicating/Measuring: AE, IFI, L&T, GE, Telemechanique, Prok
- Kitkat: Geico, Anchor
- Light Fixtures: Philips, Wipro, CG, Gesyka, Wipro
- LED Fixtures: Philips, CG, Gesyka, Wipro
- Capacitors: L&T, Crompton
- APFC Pane: L&T, Crompton
- Ceiling/Wall Fan: Crompton, Bajaj, Orient, Polar
- Cable Gland: HMI, Braco, Comet
- Cable Lugs: Dowell, 3D
- HRC Fuses/Base: AE, IFI, MECO, Enercon
- Relays: Kappa, IFI, AE, Kalpa
- Exhaust Fan: Crompton, Bajaj, Orient, Polar
- Bus Bar Tapping Box: Siemens, Schneider, ABB
- Others: ISI, IS