

VCB PANEL

| Item No. | Description of Item | Unit | Rate without GST & LWC (₹) |
|----------|---|------|----------------------------|
| 1 | <p>Supply, Installation, testing & Commissioning of 11 KV 800 A, short-circuit capacity of 26.3 KA for 1 sec, 3-panel HT Gear with VCBs. The Vacuum Circuit Breaker should comply as per IS:13118& IEC:62271-100 for Circuit Breaker & IS:3427 & IEC:62271-200/IEC 694, IEC-61850 for Indoor panel.</p> <p>The HT panel is rated at 11 KV, 3-Phase 800A, Breaking Current/short-circuit capacity of 26.3kA for 1 sec, 50c/s and shall be of floor-mounting, sheet steel clad, free-standing metal enclosed air insulated switchgear cubicle with VCB inside. The Vacuum Circuit Breaker is horizontal isolation & horizontal draw out/Vertical isolation & horizontal draw out with 3 compartments and is made of 2mm CRCA sheet for load bearing members with vermin & moisture proof along with automatic shutter arrangement for complete isolation of bars, cable sockets & other live parts etc. when the removable portion is withdrawn. The breaker is arranged for hand operation through front of the panel push buttons & spring charging mechanism and also electrical motor which will be energized by 230V AC. Closing and tripping coils are rated for 110V DC to be made available from the station 400 V 3 phase 50 C/s A.C. source with remote operation compatibility. All trip coils shall be of shunt trip type energized from a suitable rectifier condenser source supply is required. There is a remote operation through multi core arrangement for closing & tripping. The shutter shall be gravity operated.</p> | | |
| | INCOMING CIRCUITBREAKER | | |
| | <p>a) 3 Phase Star- Star 3 limb draw type line PT 11KV/$\sqrt{3}$ /110V/$\sqrt{3}$, 100VA Cl - 1 with fuses for primary & secondary circuit - 1 no. b) Epoxy Cast, Dual Core Delta/Y-Y CT having CT ratio 150/100/5+5 ,with CORE1:15VA Class-1.0 CORE2 -:15VA, Class-5P10, STC - 26.3ka for 1 sec- 3 nos. c) Shunt Trip Coil of 110V DC- 1 no. d) LED type indicating lamp for VCB ON/OFF, CB Trip, Springe Charge, Trip Ckt Healthy- 5 nos. e) LED type RYB Phase indication lamps-- 1 set f) Cubicle Panel illumination lamp.- 1 set g) Push Button for Emergency Trip- 1 no. h) Digital Voltmeter with Selector switch- 1 no. i) Digital Ammeter with Selector switch-- 1 no. j) Digital Multi-Function Meter- 1 no. k) Combined Numerical Relay of SCADA-compatibility incl. providing necessary software with following protection function:-50, 50N, 51, 51N, 37, 46, 46BC, 49, 50BF, 64N,68,86& 95 with programmable in-built LED indicating lamp --- 1 set. (Siemens/ ABB/ Crompton Greaves/ L&T/Alstom) l) Master Trip Relay - 1 no. m) Trip circuit Supervision relay - 1 no. n) Anti pumping relay-- 1 no. o) 6/8 Window Annunciator -- 1 set p) Local Remote/T-N-C/Motor On-Off/Heater On-Off Switch- 4 set. q) MCB for control supply- AC/DC -- 2 sets r) HRC control fuse & link as per scheme-- 1 set s) 110V DC Hooter- 1 no. t) Power Pack with 220V AC input & 110V DC continuous output should be capable of taking O-C-O operation with its battery backup. Charging unit for system, complete with suitable inter-connection with 2.5 sq.mm FRLS insulated copper conductor cable etc. as required -1 set u) Panel space heater with thermostat-- 1 no. v) Panel Illumination lamp.</p> | | |

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| | <p>OUTGOING CIRCUITBREAKER</p> <p>a) Epoxy Cast, Dual Core Delta/Y-Y CT having CT ratio 100-50/5+5A with CORE1:15VA Class-1.0 CORE2 -:15VA, Class-5P10. The CT should have at least 25% over capacity than total connected load. STC - 40ka for 1 sec- 3 nos. b) Shunt Trip Coil of 110V DC- 1 no. c) LED type indicating lamp for VCB ON/OFF, CB Trip, Spring Charge, Trip Ckt Healthy- 5 nos. d) LED type RYB Phase indication lamps-- 1 set e) Cubicle Panel illumination lamp.- 1 set f) Push Button for Emergency Trip- 1 no. g) Digital Voltmeter with Selector switch- 1 no. h) Digital Ammeter with Selector switch--- 1 no. i) Digital Multi-Function Meter- 1 no. j) Combined Numerical Relay of SCADA-compatibility incl. providing necessary software with following protection function:-50, 50N, 51, 51N, 37, 46, 46BC, 49, 50BF, 64N,68,86 & 95 with programmable in-built LED indicating lamp --- 1 set. (Siemens/ ABB/ Crompton Greaves/ L&T/ Alstom) l) Master Trip Relay - 1 no.(Make - Siemens/ABB/ Crompton Greaves/L&T/Alstom) m) Trip circuit Supervision relay - 1 no. n) Anti pumping relay-- 1 no. o) 6/8 Window Annunciator -- 1 set p) Local Remote/T-N-C/Motor On-Off/Heater On-Off Switch- 4 set. q) MCB for control supply- AC/DC -- 2 sets r) HRC control fuse & link as per scheme-- 1 set s) 110V DC Hooter- 1 no. t) Panel space heater with thermostat-- 1 no. u) Panel Illumination lamp.</p> | | |
| | <p>BUSBAR</p> <p>The spacious bus bar compartment is provided on the top of the cubicle. The main bus bar can carry current up to 1000A and are made of electrolytic grade copper & shall be vertically placed one after another. The bus bars should be air insulated but must be HT PVC sleeved & color coded for R-Y-B. No live parts should be accessible. All joints should be covered with monoplast compound and color coded for easy identification. The feeder connection to the bus bars is preferred to be encapsulated.</p> | | |
| | <p>FRONT DOOR</p> <p>The front door of the breaker should not be set as front. High-Voltage door during switching operations, the high-voltage door should remain closed and mechanical interlock should prevent opening of door when the switching device is in service and is switched ON. The position of the withdraw-able section, the CLOSED/OPEN switch position of the switching device, the operating cycle counter and the “spring charged” indication should be visible through pressure-resistant inspection windows in the high-voltage door. The panel front door can be closed with the breaker in isolated position. The degree of protection in the panel is IP-43 as per Indian Standard IS 3427.</p> | | |
| | <p>BREAKER</p> | | |

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| | <p>The vacuum circuit breaker is mounted on a truck and is of horizontal isolation and horizontal drawout/Vertical isolation & horizontal drawout type having a robust motorized mechanism. The spring charge cycle duty of mechanism is O-C-O. The vacuum circuit breaker is single break design and has one vacuum interrupter per phase. The vacuum interrupter should not be of pinch tube type design, it should be sealed by brazing in a vacuum oven & all the vacuum interrupters must be segregated in a cast resin housing. The minimum operational life of the vacuum interrupter is 30,000 mechanical, 10,000 electrical at rated current & 100 at rated short circuit. The breaker is having auxiliary switch 6NO+6NC.</p> | | |
| | <p>EARTHING</p> | | |
| | <p>A continuous copper earth bus runs across the entire length of the switchboard. All doors partitions, covers and non current carrying metallic parts are earthed to achieve earth potential for the entire enclosure. Terminals are provided at each end of the earth bus to connect the grid earthing. If integral earthing facility is not available separate earthing truck shall be provided for earthing.</p> | | |
| | <p>INTERLOCK</p> | | |
| | <p>The circuit breaker can be operated only in service/test position and not in any intermediate position, beside fully isolated condition. The circuit breaker cannot be inserted into service position in closed condition and cannot be removed from service unless it is in open condition. The circuit breaker cannot be moved from test position to service position unless auxiliary plug is engaged and auxiliary plug cannot be disengaged if the breaker is in service position. If earth switch is provided it shall be mechanically interlocked with the breaker so that both the devices can not be 'ON' simultaneously.</p> | | |
| | <p>METERING</p> | | |
| | <p>For Incoming - Digital Ammeter, Digital Voltmeter. For Outgoing - Digital Ammeter. Multifunctional Meter Type: Flush mounted, sealed dustproof construction (Front- IP5X, Rear -IP4X), multifunctional Display : Alphanumeric LCD Display having capability to Giga Display Parameters : Voltage, Current , PF/Frequency and all energy & power parameters with autoscrolling. RTC : In-built Accuracy Class : 1.0 Keyboard :Front Panel Keyboard with auto keyboard lock and password protection for setup parameters .Communication port : RS485. Communication Protocol : MODBUS Memory : Inbuilt memory for keeping back-up of Integrated. Data. Other features - Programmable CT/PT ratio, built in phase analyzer (Make : As per manufacturer's standard).</p> | | |
| | <p>Power pack with 220 Volt AC input & 110 Volt DC continuous output suitable for closing/tripping indication of HT panel Boards with 2 Nos. 12 volt 100 AH maintenance free batteries, Charging unit for trip system complete with suitable capacity digital ammeter & voltmeter i/c connections with 2.5 sqm FRLS insulated copper conductor cable etc as required.</p> | | |

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| | The panel shall be complete with power pack unit, test terminal blocks, fuses, mcbs, circuit labels, illuminating lamps in each panel, indicating lamps etc., wiring for interconnection with suitable size copper cable, suitable cable end box with cable entry from bottom for incoming and outgoing cables, HV Danger Notice board, Earth bus bars, foundation bolts and nuts etc. as required and as per direction of EIC(Make :All the accessories will be as per manufacturer's standard). | | |
| 1.1 | Single Panel | Each | 1043415.00 |
| 1.2 | Three Panel | Each | 1739025.00 |
| 2 | Supply, Installation, testing & Commissioning of 6 KV 800 A , short-circuit capacity of 26.3 KA for 1 sec, 3-panel HT Gear with VCBs. The Vacuum Circuit Breaker should comply as per IS:13118& IEC:62271-100 for Circuit Breaker & IS:3427 & IEC:62271-200/IEC 694, IEC-61850 for Indoor panel. The HT panel is rated at 6 KV, 3-Phase 800A, Breaking Current/short-circuit capacity of 26.3kA for 1 sec, 50c/s and shall be of floor-mounting, sheet steel clad, free-standing metal enclosed air insulated switchgear cubicle with VCB inside. The Vacuum Circuit Breaker is horizontal isolation & horizontal draw out/Vertical isolation & horizontal draw out with 3 compartments and is made of 2mm CRCA sheet for load bearing members with vermin & moisture proof along with automatic shutter arrangement for complete isolation of bars, cable sockets & other live parts etc. when the removable portion is withdrawn. The breaker is arranged for hand operation through front of the panel push buttons & spring charging mechanism and also electrical motor which will be energized by 230V AC. Closing and tripping coils are rated for 110V DC to be made available from the station 400 V 3 phase 50 C/s A.C. source with remote operation compatibility. All trip coils shall be of shunt trip type energized from a suitable rectifier condenser source supply is required. There is a remote operation through multi core arrangement for closing & tripping. The shutter shall be gravity operated. | | |
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