



ODISHA POWER TRANSMISSION CORPORATION LIMITED

COMMON DOCUMENT

TECHNICAL SPECIFICATION

FOR

SYSTEM DATA

SYSTEM DATA

| Sl.No | Description of Technical Parameter | Unit | System | | | |
|-------|--|--|--|--------------------------------|------------------------------|------------------------------|
| 1 | Nominal system voltage | kVrms | 400kV | 220kV | 132kV | 33kV |
| 2 | Maximum system voltage | kVrms | 420kV | 245kV | 145kV | 36.kV |
| 3 | Power frequency with stand voltage | kVrms | 630kV 520kV | 460kV | 275kV | 70kV |
| 4 | Switching surge withstand voltage (for 250/2500µs 1. Line to earth 2. Across isolating gap | kVp | 1050kVp 900kVp+345 kV _{rms} | Not applicable | Not applicable | Not applicable |
| 5 | Lightning impulse withstand voltage 1. Line to earth 2. Across isolating gap | kVp (for 1.2 /50µs) | 1425kVp 1425kV _p + 240kV _{rms} | 1050kVp 1200kV _p | 650kVp 750kV _p | 170kVp 195kV _p |
| 6 | One minute power frequency withstand value Dry Wet | kV _{rms} kV _{rms} | 630 610 | 460 530 | 275 315 | 70 80 |
| 7 | System frequency | Hz | 50 | | | |
| 8 | Variation in frequency | % | ±2.5 | | | |
| 7 | Corona extinction voltage | | 320kV | 156kV | 105kV | |
| 8 | Radio interference voltage | | 500µV at 266KV | 500µV at 167KV | 1000µV at 93KV | |
| 9 | System neutral rating | | Solidly earthed | | | |
| 10 | Continuous current rating | | 2000A | 2000A | 1250A | 800A |
| 11 | Symmetrical short circuit current | kA | 63/40 | 40 | 31.5 | 25 |
| 12 | Duration of short circuit fault current | Second | 1 | 1 | 1 | 3 |
| 12 | Dynamic short circuit current rating | kAp | 157.5/100 | 100 | 79 | 62.5kA |
| 13 | Air clearances Phase to ground Phase to phase System to system within a phase | meters meters meters meters | 3.5 4.2 - | 2.1 2.4 - | 1.3 1.3 | 480 530 |
| 14 | Conductor spacing for AIS layouts Phase to ground Phase to phase | meters meters meters | 6.5 7.0 | 4.5 4.5 | 3 3 | 1.5 1.5 |
| 15 | Design ambient temperatures | °C | 50 | | | |
| 16 | Pollution level as per IEC-815 and 71 | | III | | | |
| 17 | Creepage distance | mm | 10500 | 6125 | 3625 | 900 |
| 18 | Maximum fault clearing time | ms | ≤100 | not exceeding ≤100ms | | not exceeding ≤150ms |

| | | | | | | |
|----|---|--------|--|--|--|--|
| 19 | Safety clearances | | | | | |
| | 1. Section clearance | metres | 6.5 | 5 | 4 | 4 |
| | 2. Ground clearances(between ground and bottom most part of energised object) | metres | 8 | 5.5 | 5 | 4 |
| | 3. Horizontal clearance between the fence and energised object | metres | As per I.E. Rules As per I.E. Rules | As per I.E. Rules As per I.E. Rules | As per I.E. Rules As per I.E. Rules | As per I.E. Rules As per I.E. Rules |
| | 4. Horizontal clearance between the road centre line and energised part of the nearby equipment | | | | | |
| 20 | Bay width | metres | 27 | 18 | 11-13.1 | 5.5 |
| 21 | Height of bus equipment interconnection from ground | metres | 8 | 5.5 | 5 | 4 |
| 22 | Height of strung busbar | metres | >15 | 10.5 | 8.5 | 5.5 |