



36kV METERING & SWITCHGEAR MODULE

DAMODAR VALLEY CORPORATION
ELECTRICITY DEPARTMENT
VIP ROAD
KOLKATA - 700054

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BASIC REQUIREMENTS DATA SHEET

Sl.	Parameter	Value
1	2	3
	Brief description of the requirement	33kV, indoor type, metal clad, circuit breaker units are required that have single phase, dry type, CT and PT units accommodated within the CB module or mounted separately in a separately in a separate metal clad module. The module must have provision for termination of incoming and outgoing cables. The module must be compact in size so that it can be accommodated in a padlocked room.
	General	
1.	Rated voltage	36 kV
2.	Operating voltage	33 kV
3.	System frequency	50 Hz
4.	Power frequency withstand voltage	70 kV_{rms} (50 Hz, 1 min)
5.	Lightning Impulse withstand voltage	170 kV_p
6.	Rated current (minimum)	400 Amps
7.	Allowable temperature rise over an ambient of 50 degC	55 degC
8.	System grounding	Grounded through non-effectively earthed (zig-zag star grounding transformer) system
	Applicable Standards	
9.	HV switchgear and control gear - Part 1: Common specifications	IEC 62271-1

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10.	Metal enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV	IEC 62271-200
11.	Cable connections for gas insulated metal enclosed switchgear for rated voltages above 52 kV	IEC 62271-209
12.	Alternating current disconnectors and earthing switches	IEC 62271-102
13.	Switch fuse combination	IEC 62271-105
14.	Current transformer	IEC 60044-1, IS 2705
15.	Voltage transformer	IEC 60044-2, IS 3156
16.	Circuit Breaker Module	
17.	Circuit Breaker	Shall consist of a draw out type, vacuum/ SF_6 circuit breaker (CB) unit or a fully sealed, vacuum/ SF_6 , CB unit connected in series with a disconnector switch
18.	Breaking capacity of circuit breaker	31.5 kA, 1 sec.
19.	Earthing switch making capacity	62.5 kA
20.	Internal arc withstand current for 1 sec	25 kA
21.	CB Operating mechanism	Motor driven mechanism suitable for remote operation
22.	CB switching sequence	0 - 0.3s - CO - 3min CO - 3min - CO
23.	Disconnector operating mechanism	Manual fast acting mechanism independent of operator action for isolator and earth switch. The disconnector operation shall only be possible provided that the circuit breaker is open.
24.	Interlocks	Provision shall exist for preventing access to the operating shaft to avoid all operator errors
25.	Protection	Self powered microprocessor based numerical relay for three phase non-directional OC and EF units with transformer inrush detector shall be provided.
26.	Construction	CB, switches and busbar to be contained in a steel housing. The housing should meet all the norms applicable to sealed pressure enclosure indicated in IEC 62271-200.
27.	Indications	Position of switches must be visible on the front of the unit. Live cable and gas pressure indication must also be provided.
28.	Auxiliary supply	Auxiliary DC/AC supply unit shall be an integral part of the breaker module
29.	Panel details	Panel doors must be pad lockable
	Measuring Module	
30.	Installation	Indoor type
31.	Construction	This may be an intergral part of the breaker module or a separate module with air insulated, 3 phase busbar with instrument transformers
32.	Instrument transformers	Three CTs and three VTs

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33.	CT details	36kV, 31.5kA-1s, 600-300/5-5A, 0.2S Cl, Mu-metal core, 15/10VA, ISF ≤ 5 at all taps, 120% extended current, 120% cont. thermal current.
34.	VT details	36kV, $\frac{33kV}{\sqrt{3}} / \frac{110V}{\sqrt{3}}$, 0.2S Cl, 1.2 cont, 50VA
35.	LV compartment Power Cabling	Separate enclosure to be provided for mounting a tariff meter and Test terminal block (TTB)
36.	Termination	Cable terminations may be from the front or back. Scope of supply includes all accessories such as termination kits, cable boots etc.
37.	Details of cable to be terminated	1C, 630 sq.mm, Al. conductor, 38/66kV, XLPE cable to IS 7098 Part 3
38.	Module to module link	Scope of supply includes all module inter-connection equipment requirement
	Tests	
39.	Type	All individual equipment such as CB, CT, PT must be type tested as per reference Std.