

CHAPTER-9

Protective Schemes for Distribution Transformers

This chapter covers recommended protection schemes for distribution transformers.

1. SCOPE

1.1 This specification covers protection schemes for distribution and transformers classified according to application, voltage and MVA ratings.

1. PROTECTION OF DISTRIBUTION TRANSFORMERS

2.1 Pole mounted distribution transformers of capacities ranging from 16 kVA to 200 kVA with voltage ratio of 11000/433 – 250 volts shall have the protection as given in Table. 1.

Table 1

Voltage Ratio	Capacity (kVA)	Protection	
		Primary side	Secondary side
11000/433 – 250	16, 25, 63	Dropout/Horn	Moulded Case Circuit
Volts	100 and 200	Gap fuse	Breaker (MCCB)

2.2 Ground mounted distribution transformers of capacities ranging from 200 kVA to 3150 kVA with voltage ratio of 11000/433, and 33000/433 Volts shall have the protection as given in Table II

Table II.

Voltage Ratio	Capacity (kVA)	Protection	
		Primary side	Secondary side
11000/433 – 250	315, 630, 1000	HRC/Expulsion	MCCB
250	and 1600	fuse	
33000/433	630, 1000, 1600, 2000	HRC/Expulsion	MCCB
		fuse	

2.2.1 IDMT type over-current and earth fault relay shall be provided where circuit breakers are employed.

2.2.2 Oil temperature indicator with one electrical contact for alarm or trip shall be provided for distribution transformers of capacities 750 kVA onwards. Winding temperature indicator with two electrical contacts for alarm and trip can be specified by purchaser as an optional item for distribution transformers of capacities 750 kVA onwards.

2.2.3 Buchholz relay with alarm and trip contacts shall be provided for transformer of capacity 750 kVA onwards.

2.2.4 The 33 kV and 11 kV windings of the distribution transformers located outdoors and connected to overhead lines shall be protected by lightning arresters.