

# Protection

## Time Fuse Link (TFL)

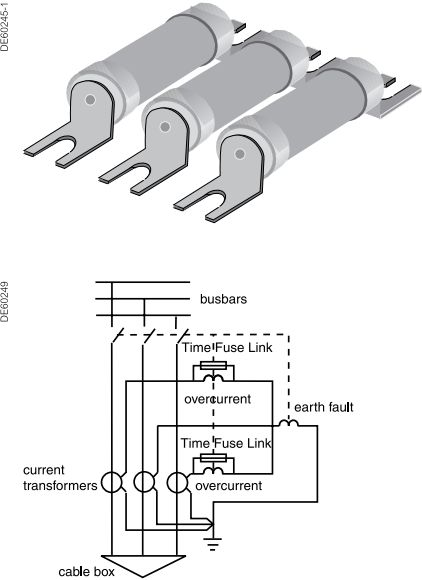
- Low cost
- Fast clearance of LV faults
- Simple to replace
- Proven protection to EA standards
- Fast tripping for MV earth faults
- Improved discrimination with LV fuse

### TFL protection

An effective low cost option without compromising reliability. CT operated trip coils (with TFL) provides phase overcurrent and earth fault inverse time protection, the characteristic being given by a Time Fuse Link (TFL). This option is suitable for transformer protection up to 1600 kVA.

#### Recommended Time Fuse Link (TFL) settings to ESI 12-6

	(kV)	Voltage Transformer rated power (kVA)							
		200	315	500	800	1000	1250		1600
<b>CT ratio = 50/5</b>	3.3	10 A						TFL	
		150 A						LV fuse	
	6.6	5 A	10 A	15 A				TFL	
		150 A	250 A	400 A				LV fuse	
<b>Earth fault setting = 25 A</b>	11	3 A	5 A	10 A	15 A			TFL	
		200 A	300 A	400 A	560 A			LV fuse	
	13.8	3 A	5 A	10 A	15 A			TFL	
		200 A	300 A	400 A	560 A			LV fuse	
<b>CT ratio = 100/5</b>	3.3	5 A	10 A	15 A				TFL	
		150 A	250 A	400 A				LV fuse	
	6.6		5 A	7.5 A	12.5 A	15 A		TFL	
			250 A	400 A	560 A	560 A		LV fuse	
<b>Earth fault setting = 30 A</b>	11			5 A	7.5 A	10 A	12.5 A	15 A	TFL
				400 A	560 A	630 A	630 A	630 A	LV fuse
	13.8			5 A	7.5 A	10 A	12.5 A	15 A	TFL
				400 A	560 A	630 A	630 A	630 A	LV fuse



The current transformer feeds a trip coil that is normally shunted by a time fuse link. In the event of a fault the fuse ruptures, diverting all the fault current through the trip coil, tripping the breaker. A residually connected trip coil provides instantaneous earth fault protection.

#### Protection application guide

Product	CE2, CN2, RN2d, RE2d		CE6, RN6d		
	Transformers		Transformers	Ring feeders	Incomers
Application	200-1 600 kVA	400-3 800 kVA	1 900-12 000 kVA	1 900-12 000 kVA	1 900-120 00 kVA
Time fuse Link	•				
IDMT VIP 400		•	•	•	•

Note: a protection co-ordination study may be necessary to verify the type of protection. Consult your local Schneider Electric sales engineer if in doubt.

#### Protection selection guide

Primary current (A)		10	20	80	100	125	200	630
Equivalent transformer rating at 11 kV		200 kVA	400 kVA	1 600 kVA	1 900 kVA	2 400 kVA	3 800 kVA	12 000 kVA
Application	Panel	Protection						
Transformer protection	CE2/CN2	Time Fuse Link	•	•	•			
	RE2d/RN2d	IDMT-VIP 40/45	•	•	•	•		
	RE2d/RN2d	IDMT - VIP 400		•	•	•	•	
Feeder protection	CE6/RN6d	IDMT - VIP 400			•	•	•	•