Type CAG 17, 37
Instantaneous Overcurrent Relay

ALSTOM

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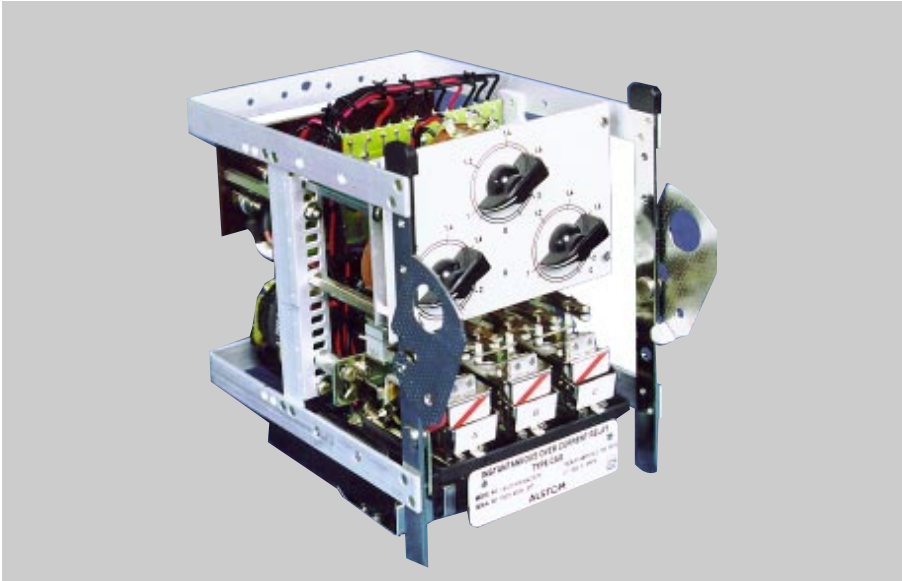

CAG 37 relay
withdrawn from case

Features

- Continuously variable current setting
- High drop-off/pick-up ratio
- Low transient over reach
- Wide setting range

Application

The relay type CAG 17 relay is a highset instantaneous over current unit with low transient over-reach and a high drop-off/pick-up ratio. CAG 37 is a triple pole version of CAG 17.

Because of its continuously variable settings and immunity to offset transients, this relay has special advantages for the protection of transformer feeders and feeders connected to high MVA sources.

Where lines are fed from high MVA sources the impedance of the line causes a sharp reduction in fault current as the distance between the fault and source increases.

Conventional instantaneous overcurrent protection gives good discrimination and economy on these lines, but a relay set to detect symmetrical faults at the far end will overreach and cause tripping for offset faults which are outside the protected zone. The overcurrent setting must, therefore, be raised in proportion to the overreach of the relay, with consequent loss of coverage for symmetrical faults at the far end of the line.

CAG 17 can be accurately set to cover all feeder faults upto the transformer secondary bushings and ensures correct discrimination at high speed under maximum offset fault condition.

Description

The relay comprises a standard dc hinged armature unit fed via a single phase transformer and a full wave bridge rectifier. A residual screw is fitted with armature of the relay to achieve a high drop-off/ pick-up ratio. A potentiometer is connected in parallel to the relay coil and adjustment of this varies the effective operating current of the relay. The transformer primary winding is multi tapped to give further adjustment of the relay operating current and together with potentiometer gives an overall adjustment of the current setting. Selection of transformer primary tapping is by means of a miniaturised plug board.

A surge diverter is connected across the secondary winding of the transformer to limit the secondary voltage.

See Figure 2 for the external and internal circuit connections.

Technical data

Ratings

1A or 5A
50Hz or 60Hz

Settings

The instantaneous phase fault o/c and earth fault o/c settings are:

10 - 80%, 100 - 800%, 50 - 400%, 250 - 2000% continuously adjustable

Operating time

Refer Figure 1.

Transient overreach

Less than 1% for system angles up to 88° on all settings.

Drop-off/pick-up ratio

Not less than 80% of setting current.

Thermal rating

CONTINUOUS:
Minimum setting current subject to maximum of 20 A.

SHORT TIME:
Maximum setting current for 15s.

Accuracy

±10% with Error class E10 as per BS 142 and 10 as per IS:3231.

Insulation

The relay meets the requirements of IS 3231/IEC 255.5 Series C-2kV for 1minute.

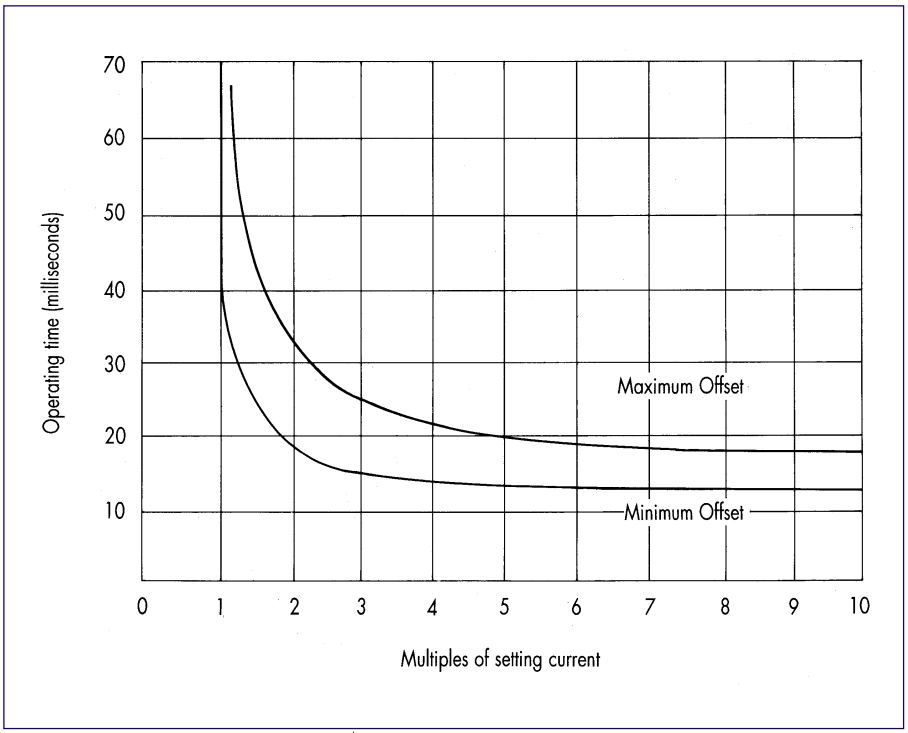

Figure 1:
Operating time/current characteristic.

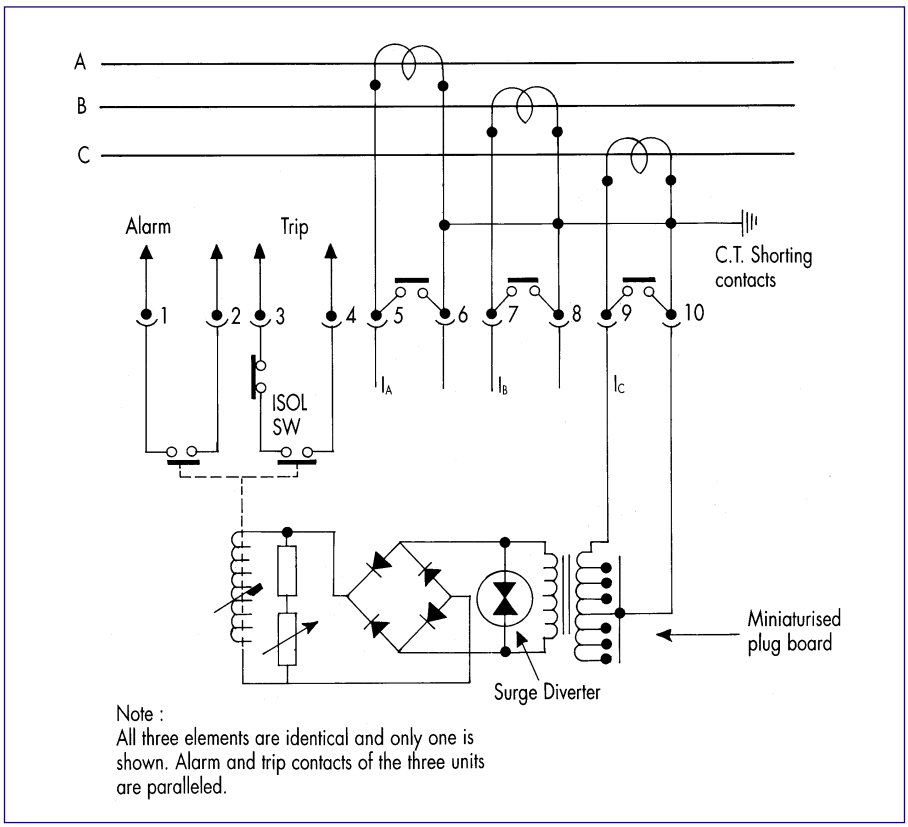

Figure 2:
Typical external and internal connection diagram for CAG 37 relay

Burdens

Burden in VA	50 - 400%				250 - 2000%			
	50%		400%		250%		2000%	
	1A	5A	1A	5A	1A	5A	1A	5A
at setting current	0.03	1.5	0.24	5.16	1.5	6.54	5.16	58
at rated current	0.06	0.2	0.14	0.01	0.2	1.17	0.01	0.12

Burden in VA	10 - 80%				100 - 800%			
	10%		80%		100%		800%	
	1A	5A	1A	5A	1A	5A	1A	5A
at setting current	0.68	0.03	2.10	0.24	0.7	9.85	2.76	17
at rated current	19	0.06	3.22	0.14	0.7	1.85	0.04	0.24

Contact ratings

	Make and carry continuously	**Make and carry for 0.3 second**	**Break**
AC	1250 VA with maxima of 5 A and 660 V	7500 VA with maxima of 30 A and 660 V	1250 VA with maxima of 5 A and 660 V
DC	1250 W with maxima of 5 A and 660 V	7500 W with maxima of 30 A and 660 V	100 W (resistive) 50 W (inductive) with maxima of 5 A and 660 V

Dimensions and weights

Relay	Case size	Maximum overall dimensions			Approximate gross weight Kg.
		Height mm	Width mm	Depth* mm	
CAG 17	1D	233	170	203	4.0
CAG 37	1D	233	170	203	5.0

* Add 76 mm. for maximum length of terminal studs, alternatively, 29 mm. for terminal screws.

The approximate gross weights given above are inclusive of cartons, mounting appendages and terminal details.

The relays comply fully with the requirements of IS 3231 and are suitable for use in normal tropical environments.

Contacts

2 pairs of normally open self reset contacts.

Case

1D vertical case suitable for flush mounting and finished twin tone and tropicalised. Suitable trip isolating switch and CT shorting switches provided on the cradle assembly/case.

Information required with order

1. Single or triple pole
2. Current transformer secondary rating
3. Setting range
4. Frequency

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