VAPM 31

Fuse Failure Relay

VAPM31 Relay is used for detection of failure or inadvertent removal of voltage transformer secondary fuses and for prevention of incorrect tripping of circuit breakers.

Features

- High speed operation
- Compact and robust construction
- Positive action

General Description

Type VAPM 31 relay consists of a static rectifier circuit with a long core hinged armature output unit. Three coils for the three phases are wound over a single core producing in effect a common relay for the three phases. Each coil is connected across one of the voltage transformer secondary fuses and under healthy conditions, this coil is short circuited by the fuse and cannot be energised. When one or more fuses blow or are removed, the appropriate coil(s) is energised and the relay operates immediately to open the trip circuit.

Successful prevention of false tripping relies on the high speed of the VAPM 31 relay, which operates faster than most schemes of protection but cannot begin to function until the fuse is completely blown. In practice, however, most VT fuse failures are caused by deterioration or accidental removal and fuse blowing time is not important.

Technical data

Coil Rating

110V, 50 Hz phase to phase, phase to neutral series impedance of the distance or other relays in series with the fuse failure relay should not exceed 1000 ohms i.e. the voltage circuit burden should be greater than 4VA per phase.

Operating time

Time between failure or removal of voltage transformer secondary fuses and opening of normally closed contact is less than 7m seconds. Refer Figure 1 for time/voltage curve.

Thermal Rating

110% of rated voltage continuously.

Burden

3.5VA per phase at rated voltage during operation.

Operation indicator

Hand reset operation indicator provided.

Contacts

One make, one break self reset contact. Break contact is faster in operation than make contact.

Insulation

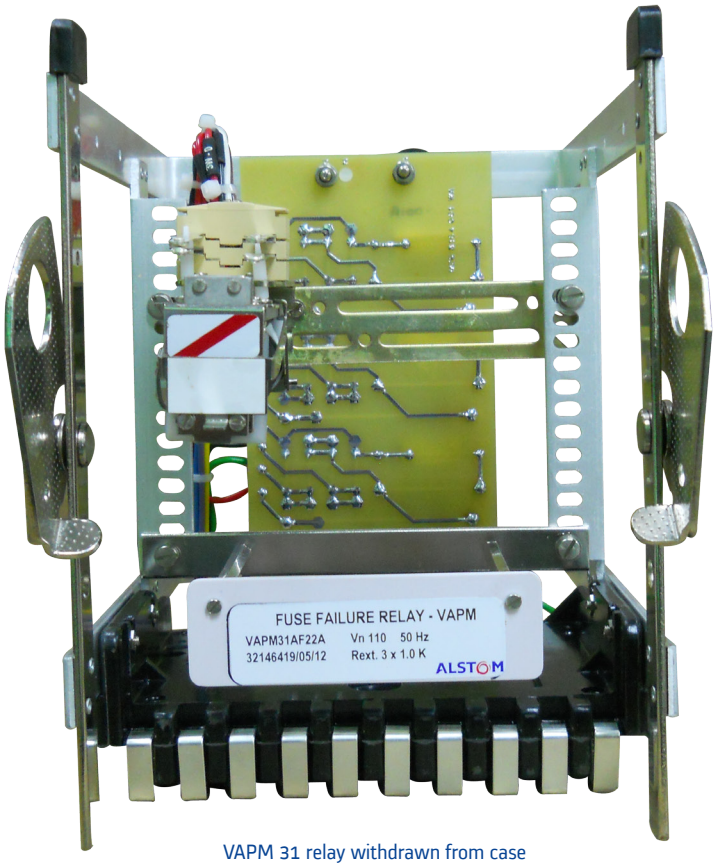
The relay meets the requirements of IS 3231:1965/IEC 255-5 Series C-2 KV for 1 minute.

External & internal connections

Typical external and internal connections are shown in Figure 2.

Customer Benefits

- Directly operates circuit breaker trip coils
- High Reliability
- High speed operation
- Immunity to wiring capacitance discharge



VAPM 31 relay withdrawn from case

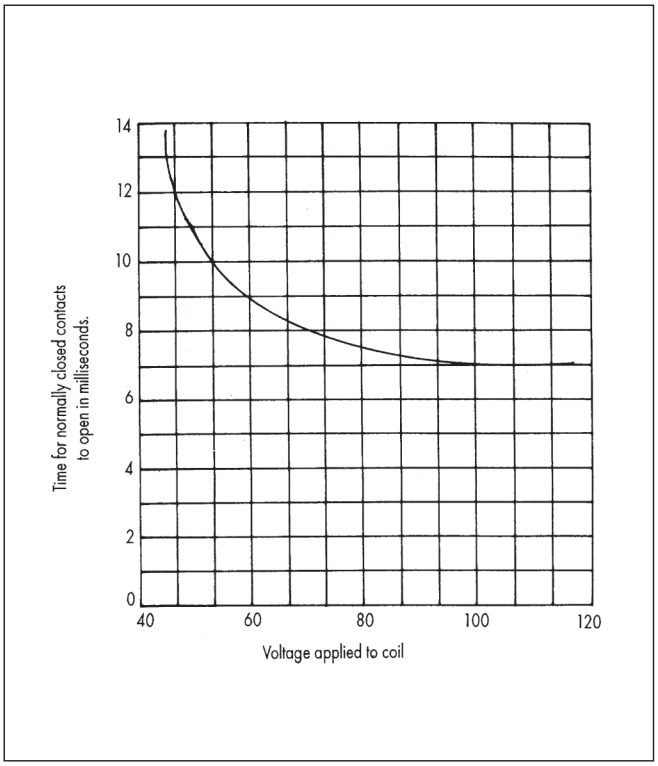


Figure 1: Operating time of normally closed contact

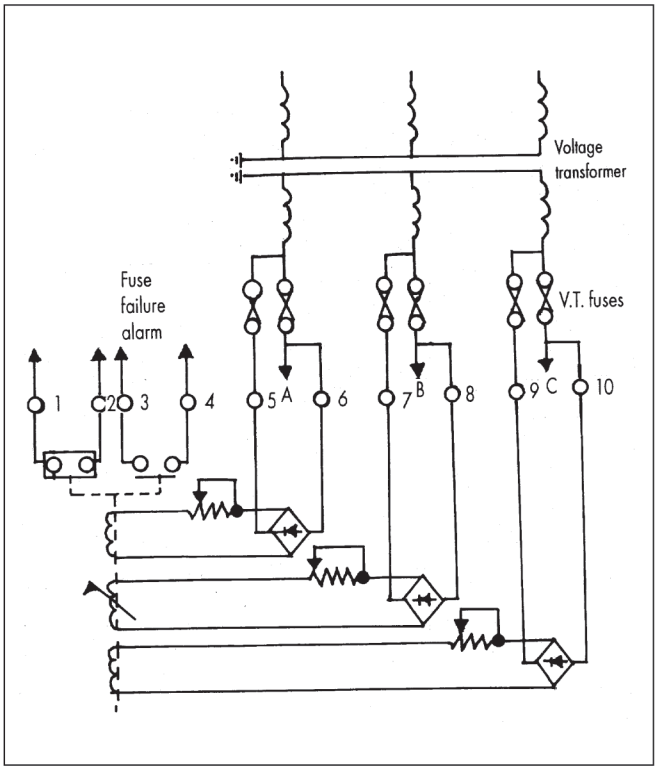


Figure 2: Typical external and internal connections for type VAPM 31 relay

Dimensions and weights

Relay	Maximum overall dimensions			Approximate gross weight Kg
Case size	Height mm	Width mm	Depth* mm	
VAPM31	1D	233	170	203	3.5

* 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.

Contact Ratings

	Make and carry continuously	Make and carry for 3 second	Break
AC	1250 VA with maxima of 5A and 660V	7500 VA with maxima of 30A and 660V	1250VA with maxima of 5A and 660V
DC	1250 W with maxima of 5A and 660V	7500 W with maxima of 30A and 660V	100W (resistive) 50W (inductive) maxima of 5A and 660V

Information required with order

Operation indicator inscription if required.

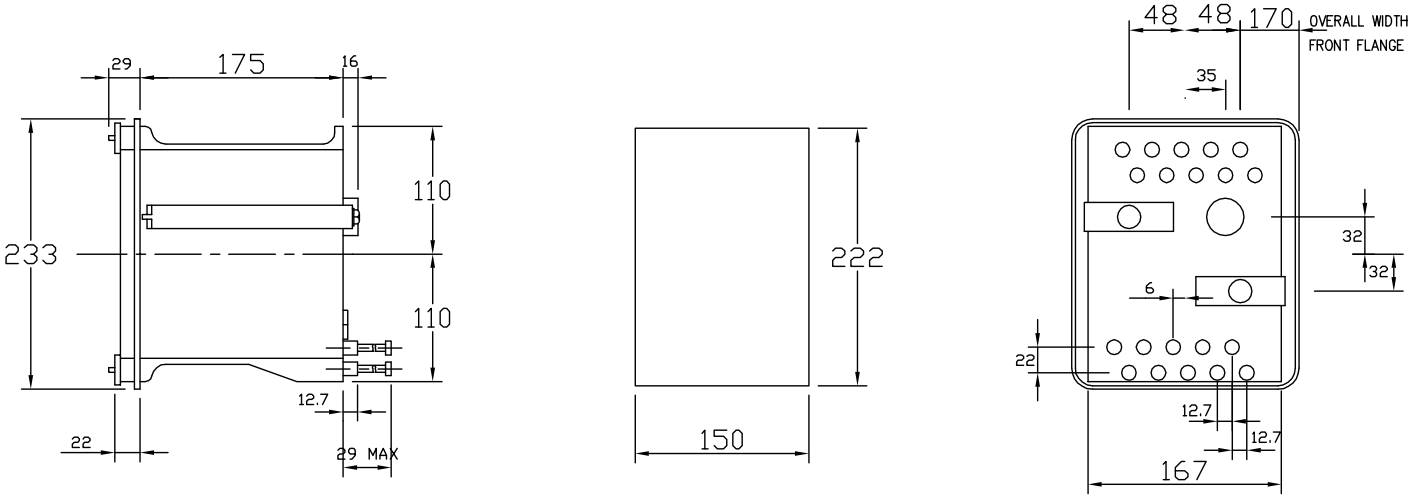


Figure: Case and Panel cut-out dimensions for case 1D (all dimensions in mm)

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