

# VAJH, VAJS & VAJHM

## High Speed Tripping Relays



Protective relays are precise measuring devices, the contacts of which should not be expected to switch large electrical loads. In some cases, the protective relay may trip a circuit breaker directly, or according to the coil rating and the number of circuits to be energized, may do so using a VAJ tripping relay. The VAJ relay interfaces the protection to provide the higher contact capacity, additional contacts for tripping multiple circuit breakers, control functions, signalling and interlocking.

The VAJ range comprises very reliable hinged armature relays designed to directly operate circuit breaker trip coils. Built to very high specifications, the VAJ range provides a highly flexible and reliable link between the protective relays and the circuit breakers.

### Features

- High speed operation
- High degree of mechanical stability
- Positive action without chatter
- Compact

### Application

High speed tripping duties where a number of simultaneous switching operations are required.

### General Description

A fast operating multi contact attracted armature relay with a high degree of mechanical stability.

Type VAJH 13 relay has hand reset contacts and is available in two versions- high burden and low burden.

Type VAJS 13 has self reset contacts and is a low burden relay.

Type VAJHM 13 high burden relay with hand reset contact is recommended

where supervision of trip relay coil is desired.

The operating current for all versions is in excess of 0.025 amp. and the relays are suitable for operation on D.C supplies fitted with a negative potential biasing device.

High burden relays are recommended in high security circuit breaker tripping circuits. The high burden provides immunity against operation due to capacitance discharge currents. Low burden relays are generally used when a number of simultaneous operations are to be initiated by a single protective relay having insufficient contacts of its own and where series connected operation indicators are not used.

### Customer Benefits

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

## Technical data

### Coil rating

24, 30, 48, and 110 or 220 V DC as standard. 110 or 200 V AC for Vajh13, Vajh23 and VAJS 13. External resistor supplied with type VAJS13 relay for 110V and above.

### Voltage Band For Satisfactory Operation

50 to 120% of rated voltage.

### Operating Time

10 milliseconds nominal, at rated voltage.  
(12.5mSec for 24 & 30V models).



### Burdens

Relay coil voltage D.C	Burden in watts at rated voltage		
	VAJH 13/VAJHM 13 High Burden	VAJH 13 Low Burden	VAJS 13
24	150	4	3
30	150	5	4
48	150	8	6
110	150	18	14
220	150	37	28

## Thermal Rating

### Type VAJH/VAJHM

Relay coil short time rated. Hand reset coil cut off contact provided in series with operating coil.

### Type VAJS

120% of rated voltage, continuous.

## Operation Indicators

### VAJH/VAJHM

Hand reset operation indicator provided.

### VAJS

Hand reset operation indicator provided when required

## Contacts

Relay Type	Contacts
VAJH 13 / VAJHM 13	4 pairs of hand reset output contacts in following combinations 4 N/O, 3N/O+ 1 N/C, 2 N/O + 2 N/C
VAJH 23 / VAJHM 23	8 pairs of hand reset output contacts in the following combinations 8 N/O, 7 N/O + 1 N/C, 6 N/O + 2 N/C, 5 N/O + 3 N/C, 4 N/O + 4 N/C
VAJHM 33/ VAJHM 53	12/20 pairs of hand reset output contacts in following combination 12 N/O, 10 N/O + 2 N/C, 8 N/O + 4 N/C, 6 N/O + 6 N/C for VAJHM 33 relay, 20 N/O, 18 N/O + 2 N/C, 16 N/O + 4 N/C, 14 N/O + 6 N/C, 12 N/O + 8 N/C, 10 N/O + 10 N/Cfor VAJHM 53 relay
VAJS 13	4 pairs of self reset output contacts in following combinations 4 N/O , 3 N/O +1 N/C , 2 N/O + 2 N/C
VAJS 23	8 pairs of self reset output contacts in following combinations 8 N/O, 7 N/O+1 N/C, 6 N/O + 2 N/C, 5 N/O + 3 N/C + 4 N/O + 4 N/C

## Contacts Ratings

	Make and carry continously	Make and carry for 3 seconds	Break
AC	1250 VA with maxima of 5 amps & 660 volts	7500 VA with maxima of 30 amps & 660 volts	1250 VA with maxima of 5 amps & 660 volts
DC	1250 watts with maxima of 5 amps & 660 volts	7500 watts with maxima of 30 amps & 660 volts	100 watts(resistive),50 watts(inductive) with maximam of 5 amps & 660 volts

## Dimensions and Weights

Relay	Case Size	Maximum number of terminals	Maximum overall dimensions			Approximate gross weight Kg
VAJH 13 VAJS 13	1/4N	10	118	105	120	1.5
VAJH 23 VAJS 23	1/2 N Hor.	20	124	153	130	2.5
VAJHM 13	1/4 N Vert.	15	118	105	120	1.5
VAJHM 23	1/2 N Hor.	20	124	153	130	2.5
VAJHM 33 VAJHM 53	1-1/2D Vert.	48	362	170	210	6.5-7.0

## Insulation

The relay meets the requirements of  
IS.3231: 196/IEC 255-5 Series C-2KV  
for 1 minute.

## Case and Finish

Relays are available in non-drawout/drawout cases suitable for flush or projection mounting. Non-drawout cases are finished bright black and drawout cases finished eggshell black and are tropicalised. A cradle mounted trip isolating switch is fitted in drawout cases to prevent inadvertent tripping of circuit breaker, while withdrawing the relay unit from the case.

## Information required with order

1. Type of relay(VAJH 13, VAJH 23 high or low burden, VAJS 13 or VAJS 23, VAJHM 13, VAJHM 23, VAJHM 33 or VAJHM 53)
2. Coil voltage rating.
3. Number of N/O and N/C contacts.
4. Whether operation indicator required(for VAJS relay only)
5. Case size

Note : Please also refer VAJ Cortec for selection details

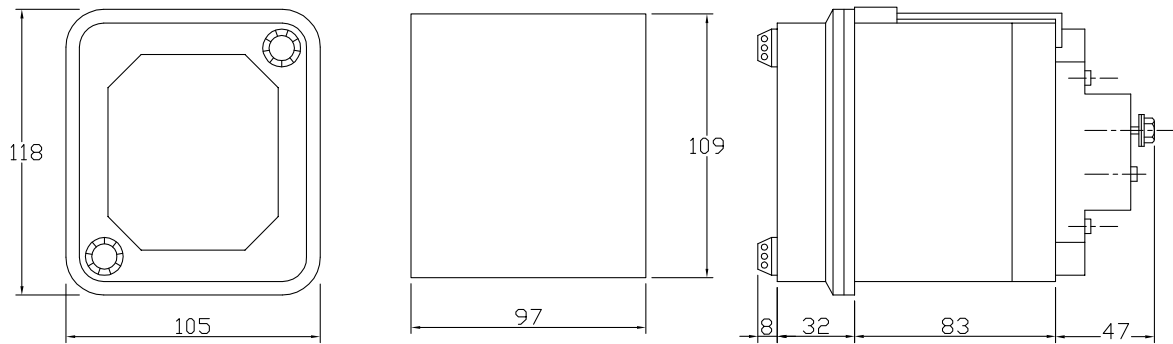


Figure 1 : Case and Panel cut-out dimensions for case 1/4N (all dimensions in mm)

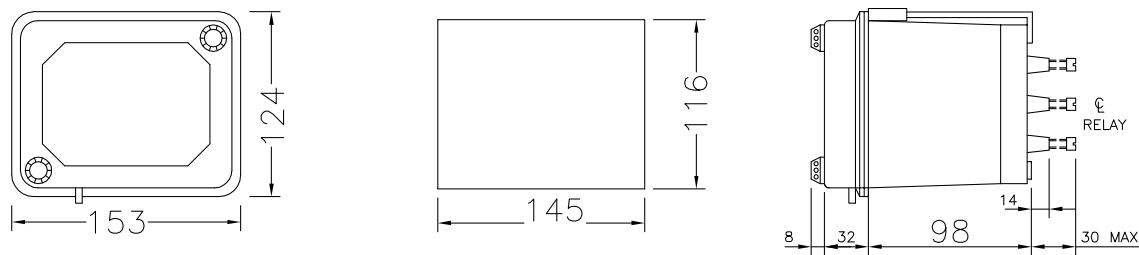


Figure 2 : Case and Panel cut-out dimensions for case 1/2N (all dimensions in mm)

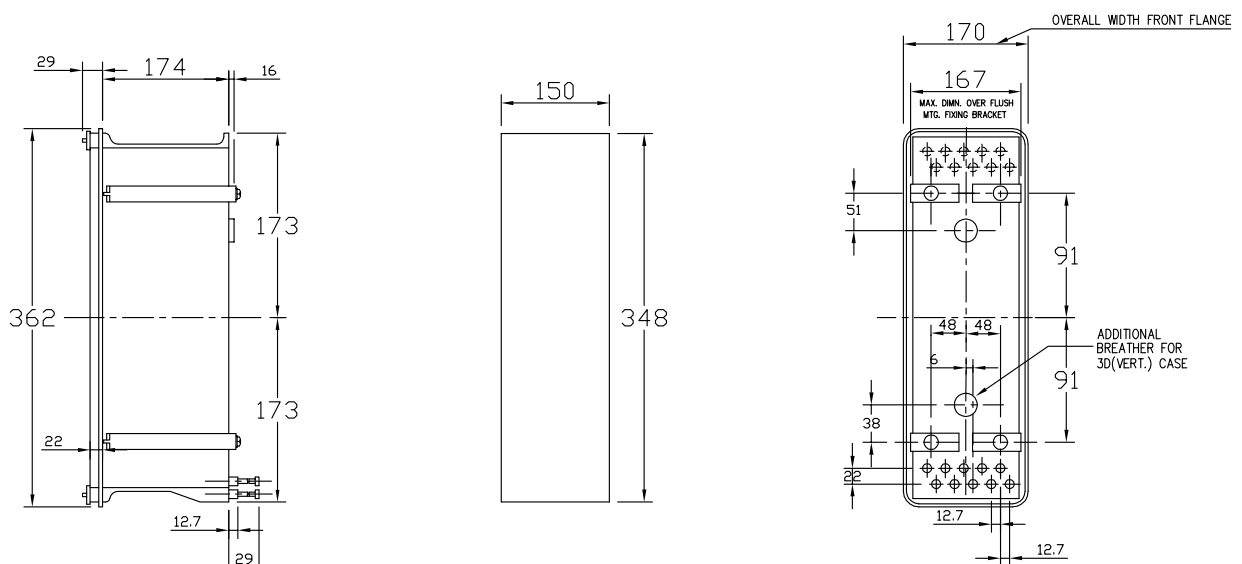


Figure 3 : Case and Panel cut-out dimensions for case 1/2D (all dimensions in mm)

# ALSTOM T&D INDIA LIMITED

Pallavaram Works  
19/1, G.S.T. Road,  
Pallavaram, Chennai - 600 043  
Tel: 91-44-2264 8000  
Fax: 91-44-2264 0040

# ALSTOM T&D Worldwide Contact Centre:

<http://www.alstom.com/contactcentre/>  
Tel.: +44 (0) 1785 250 070

[www.grid.alstom.com](http://www.grid.alstom.com)

GRID



"Alstom logo and any alternative version thereof are trademarks and service marks of Alstom. The other names mentioned, registered or not, are the property of their respective companies. The technical and other data contained in the document are provided for information only. Neither ALSTOM, its officers nor employees accept responsibility for or should be taken as making any representation or warranty (whether express or implied) as to the accuracy or completeness of such data or the achievements of any projected performance criteria where these are indicated. No liability is accepted for any reliance placed upon the information contained in this brochure. Alstom reserves the right to revise or change these data at any time without further notice."