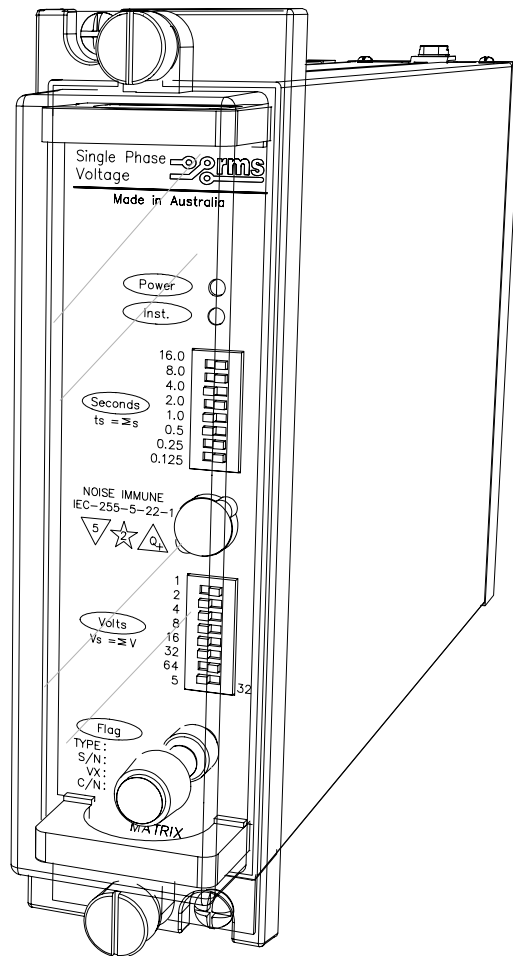


Features

- Selectable over or under voltage function
- 5-132V in 1V steps & 32-159V in 1V steps
- Alternative model for voltage monitoring of 415V systems
- Two selectable over voltage setting ranges
- Selectable 3rd harmonic filtering for neutral displacement applications
- 40-275AC & 40-300V DC aux. supply
- 20-70V DC aux. Optional
- Auxiliary supply fail alarm
- Instantaneous LED
- 0-31s definite time delay in 125ms steps
- Push button / electrical flag reset
- Non-volatile trip indication
- Multi voltage inhibit / enable input
- Multi voltage flag reset input
- Size 2M draw out case



2V74 depicted in a 2M28 case

Description

The 2V74 series relay is a single phase protection class voltage relay. It may be configured for under or over voltage operation & includes a filter for rejection of third harmonics for neutral displacement applications, which may be switched in or out of circuit.

A definite time delay element is included which is initiated by the voltage detection circuit & drives the time delayed output contacts.

DIP switches are used on the front panel to adjust voltage & time delay settings.

The draw out chassis provides access to internal links to switch the third harmonic filter in or out of service, set the over or under voltage function & operation of the initiate input (Refer to page 3 wiring diagram for details).

Application

Made in Australia

The 2V74 series relay can be configured user to suit a range of voltage protection applications. For example:

UNDER VOLTAGE

High speed detection of undervoltage in automatic transfer equipment, Protection of induction motors against the restoration of supply following the loss or severe reduction in that supply.

OVER VOLTAGE

Protection of synchronous motors & motors driving high inertia loads. Protection of hydro generators against over speed.

NEUTRAL DISPLACEMENT

(Third harmonic filter configuration)

When the third harmonic filter is switched into the circuit, the 2V74 may be applied as a neutral displacement relay. In this application the 2V74 may be applied for earth fault protection of alternator stator windings where the neutral is earthed through a voltage transformer or distribution transformer. The relay is designed for this application such that its response to third harmonics is suppressed, thus making it inoperative to the third harmonic load imbalance which normally flows in the generator neutral. The applications of the relay in this configuration also include protection against unbalance conditions in capacitor banks & the detection of earth faults in impedance earthed, solidly earthed or un-earthed systems.

AUXILIARY SUPPLY BURDEN (At 110V DC)

Less than 5W independent of range with output relays picked up

AUXILIARY SUPPLY

20-70V DC switchmode supply or
40-275V AC / 40-300V DC switchmode supply

AC VOLTAGE INPUT

| | | |
|-----------------------|---------|----------------------|
| Sensing Range: | 110V AC | 5-132V in 1V steps |
| | | 32-159V in 1V steps |
| | 415V AC | 350-477V in 1V steps |
| Dropout/Pickup Ratio: | | 90% minimum |

RATED FREQUENCY

50 / 60Hz

VOLTAGE SETTING ACCURACY

+/-5% of setting +/-0.05% of nominal.

VOLTAGE INPUT

110V AC nominal

OPERATE TIME

Timer set to zero: 30ms approx. at 10X setting.

TIMER SETTING

Range: Instantaneous (30ms) to 31s in 125ms steps.
Accuracy: +/-5% of setting +/- 0.5s.

HARMONIC REJECTION (When selected)

>20X setting for frequencies 100 Hz & above.

STATUS INPUT FUNCTION

The status input function is factory set to inhibit relay operation during the application of a control voltage. Changing a link on the PCB will change the status input to operate on the removal of a control voltage.

REMOTE FLAG RESET FUNCTION

Application of a control voltage to the optional remote flag reset input will cause the bistable flay to be reset.

OUTPUT CONTACTS

Delayed: 2 N/O contacts
Instantaneous: 1 C/O contact

OUTPUT RELAY OPERATION INDICATOR

Delayed: Hand / remote reset magnetic disc (permanent memory)
Inst: LED indication

OUTPUT CONTACT RATINGS

Make & carry

30A AC or DC (Limits L/R=40ms & 300V max.) for 0.2s
20A AC or DC (Limits L/R=40ms & 300V max.) for 0.5s
5A AC or DC continuously

Break (Limits 5A & 300V max.)

1,250VA AC resistive
250VA at 0.4PF AC inductive
75W DC resistive
30W DC inductive L/R = 40ms
50W DC inductive L/R = 10ms

Minimum recommended load

0.5W, 10mA or 5V minimum.

AMBIENT OPERATING TEMPERATURE RANGE

-5 to 55 degrees C.

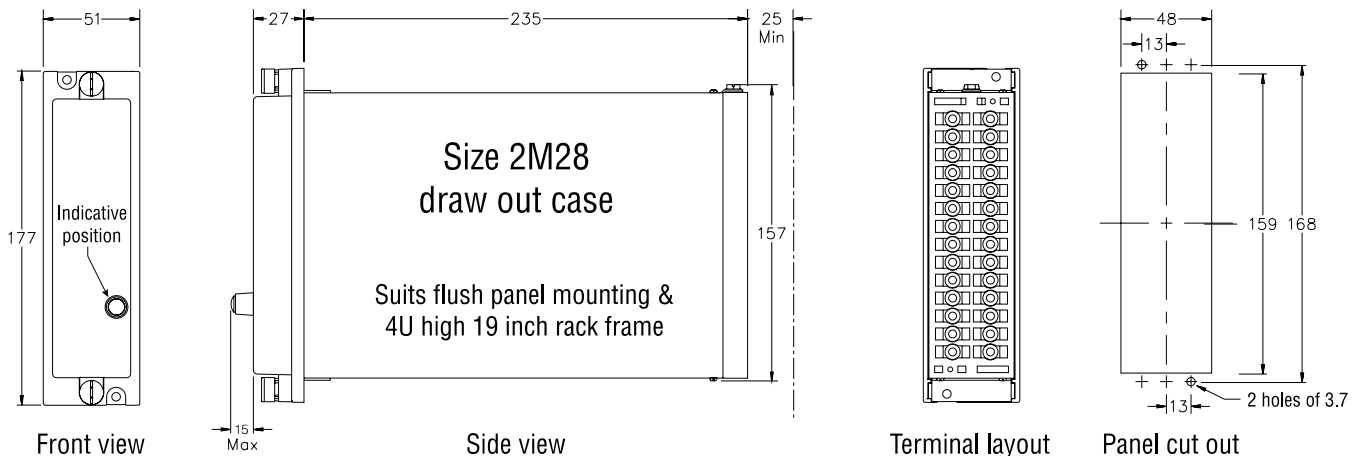
INSULATION WITHSTAND in accordance with IEC 255-5:

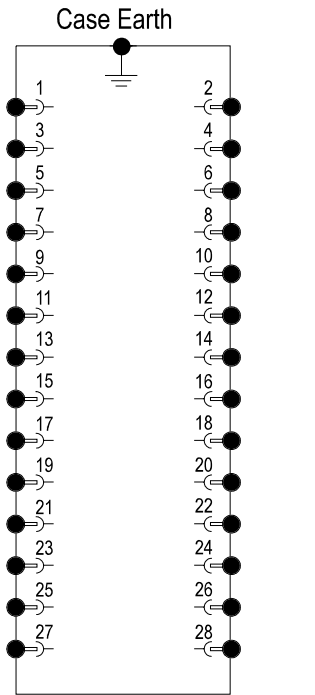
2KV RMS & 1.2/50 5KV impulse between:

- ◆ all input terminals & frame
- ◆ all output terminals & frame
- ◆ all input & output terminals
- ◆ each input group
- ◆ each output group

NOISE IMMUNITY

Withstands the high frequency interference test detailed in IEC 255-22-1.





2M28 Case terminations (REAR VIEW)

Ordering Information

Generate the required ordering code as follows: e.g. 2V74 AABB

2V74

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| | | | |

1 AUXILIARY SUPPLY RANGE

- A 20-70V DC
- B 40-275V AC & 40-300V DC

2 VOLTAGE SENSING RANGE

- A 5-132V & 32-159V in 1V steps
- B 350-477V in 1V steps

3 INITIATE INPUT

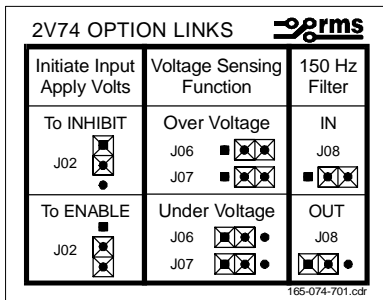
| | |
|----------------------------|-------------------------|
| <u>Opto-isolated input</u> | <u>Relay coil input</u> |
| A 24-80V AC/DC | D 12V DC |
| B 75-150V AC/DC | E 24V DC |
| C 150-300V AC/DC | F 48V DC |
| | G 110V DC |

4 REMOTE FLAG RESET INPUT

| | |
|----------------------------|-------------------------|
| <u>Opto-isolated input</u> | <u>Relay coil input</u> |
| A 24-80V AC/DC | D 12V DC |
| B 75-150V AC/DC | E 24V DC |
| C 150-300V AC/DC | F 48V DC |
| | G 110V DC |

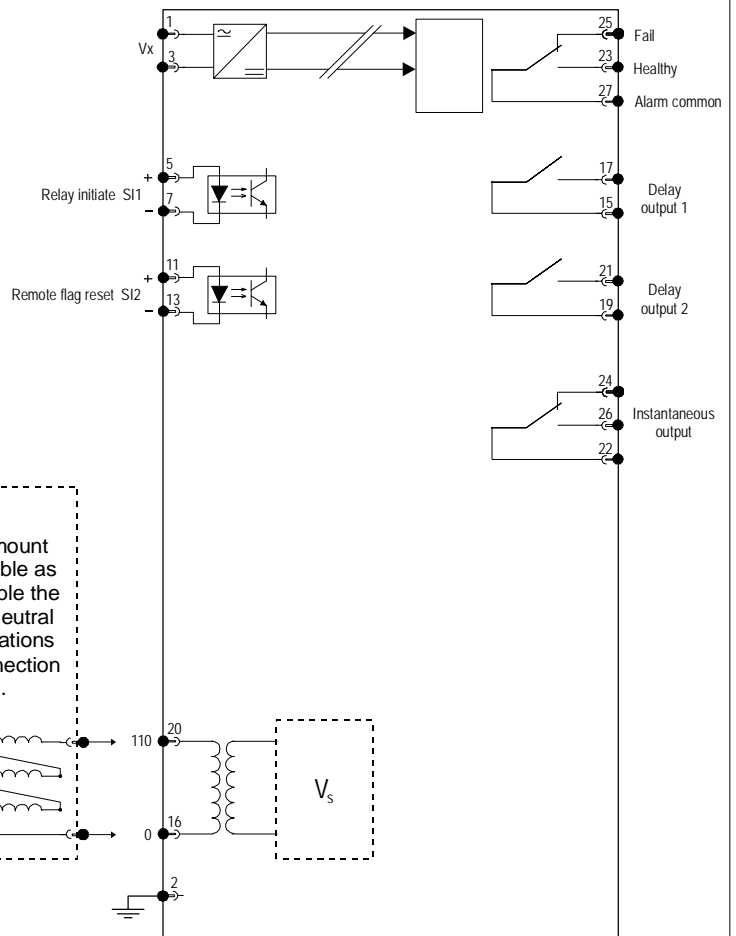
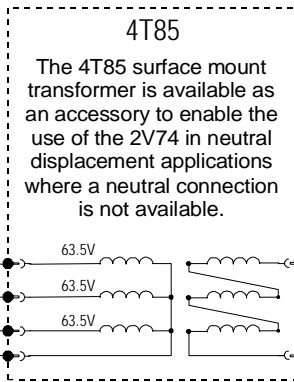
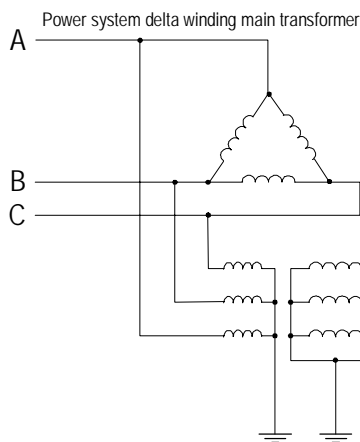
4T85 NEUTRAL DISPLACEMENT TRANSFORMER

Required where a neutral connection is not available.



Draw out relay module & position links as shown for the desired function option.

This information is also displayed on the side of the draw out relay module.



2V74 wiring diagram - Relay shown in de-energised condition

Australian Content

Unless otherwise stated the product(s) quoted are manufactured by RMS at our production facility in Melbourne Australia. Approximately 60% of our sales volume is derived from equipment manufactured in house with a local content close to 90%. Imported components such as semi-conductors are sourced from local suppliers & preference is given for reasonable stock holding to support our build requirements.

Quality Assurance

RMS holds NCSI (NATA Certification Services International), registration number 6869 for the certification of a quality assurance system to AS/NZS ISO9001-2000. Quality plans for all products involve 100% inspection and testing carried out before despatch. Further details on specific test plans, quality policy & procedures may be found in section A4 of the RMS product catalogue.

Product Packaging

Protection relays are supplied in secure individual packing cardboard boxes with moulded styrene inserts suitable for recycling. Each product & packing box is labeled with the product part number, customer name & order details.

Design References

The products & components produced by RMS are based on many years of field experience since Relays Pty Ltd was formed in 1955. A large population of equipment is in service throughout Australia, New Zealand, South Africa & South East Asia attesting to this fact. Specific product & customer reference sites may be provided on application.

Product Warranty

All utility grade protection & auxiliary relay products, unless otherwise stated, are warranted for a period of 24 months from shipment for materials & labour on a return to factory basis. Repair of products damaged through poor application or circumstances outside the product ratings will be carried out at the customer's expense.

Standard Conditions of Sale

Unless otherwise agreed RMS Standard Terms & Conditions (QF 907) shall apply to all sales. These are available on request or from our web site.



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