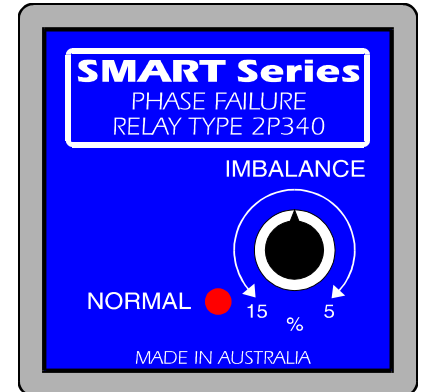
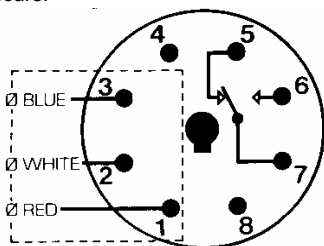


Features

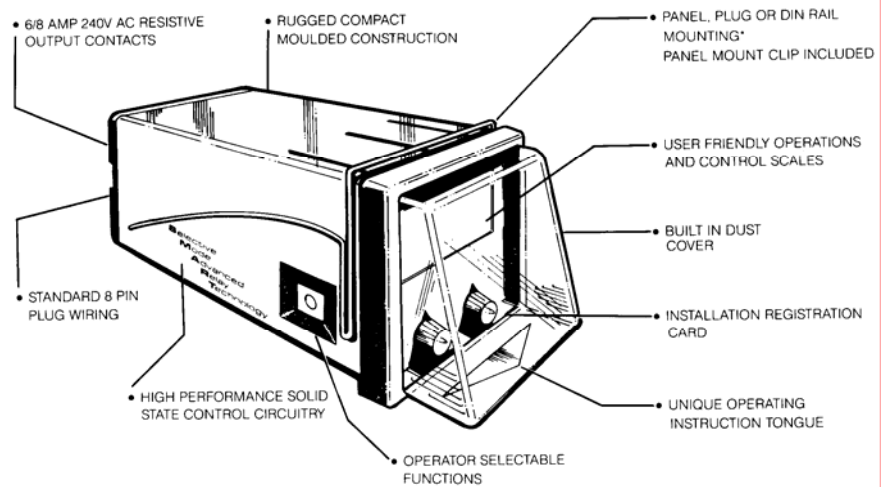
- Control Tone Insensitivity
Ripple signal control tones will not cause nuisance tripping.
- Frequency Insensitive
System frequency shifts of a few Hz from nominal have minimal effect on trip voltage.
- Fully adjustable phase imbalance trip setting of between 5% and 15% of nominal. (415 Volts AC.)
- Selectable Fast/Slow Relay Response. Nuisance tripping resulting from inrush and/or momentary voltage drops can be avoided by selecting SLOW relay response.
- Selectable Undervoltage Trip Setting. Undervoltage trip point of either 75% (311V AC) or 80% (332V AC).
- Selectable 50Hz or 60Hz Supply Operation. For use on imported equipment, such as compressors, generators etc.
- 8A 240V Changeover Output Contact
- Normal Supply State Indication
A red LED is energised to indicate a healthy 3 phase power supply.
- Standard Wiring Configuration
Output wiring meets the international standard for 8 pin plug-in relays ensuring compatibility with most existing installations.

Description

The SMART Series Phase Failure Relay is a high specification industrial quality relay designed to offer maximum protection to sensitive electrical equipment. The 8A 240 Volt rated relay contact is normally energised until detection of **PHASE IMBALANCE, REVERSAL** or **UNDERVOLTAGE** occurs.



Dimensions: 54(H) x 54(W) x 105(L)mm
Panel mount cutout: 50 x 50mm



Applications

Made in Australia

MOTOR PROTECTION

The 2P340 phase failure relay has the sensitivity to detect the voltage unbalance caused by a motor single phasing. In most instances even a motor with no load and no other loads connected to the open phase will be detected when single phasing. In using the 2P340 relay it must be realised that it only monitors the supply voltage at the point of connection and therefore provides no protection for single phasing due to faulty switchgear, connections or blown fuses, etc., on the load side of this point.

PHASE FAILURE OF H.T. LINES

The 2P340 relay is ideal for detecting phase failure and unbalance of H.V. lines. As the 2P340 detects the presence of negative sequence voltage a relay connected on the load side of a three phase transformer will detect a blown fuse or high impedance in one phase of the supply to the transformer, regardless of the transformer winding connections.

PHASE REVERSAL PROTECTION

The 2P340 relay can be used for transportable cranes, etc., which on being connected from one supply to another require phase reversal protection. The advantage of the 2P340 for this application is the added protection of phase failure and undervoltage. Refer mode selected switch 3.

3 PHASE UNDERVOLTAGE

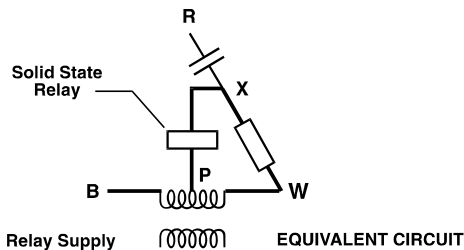
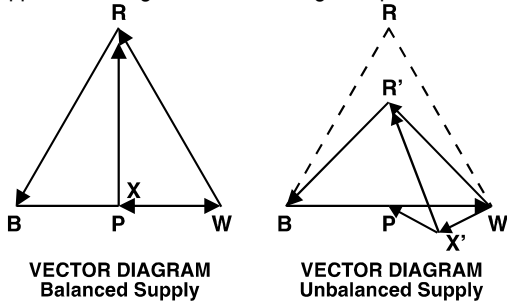
It is a useful undervoltage relay in that phase angles are also monitored. As an example three single phase undervoltage relays may not detect an open phase which is connected to a healthy phase through a low impedance load. The 2P340 relay however will detect this condition due to the change in phase angles. In using the 2P340 relay as an undervoltage relay it must be remembered that only the B-W voltage is monitored directly. The other two ϕ to ϕ voltages are monitored for correct phase angle and voltage balance with respect to the B-W voltage. The difference in percentage undervoltage expressed as phase to phase and phase to neutral must also be appreciated.

Principle of Operation

The unit consists of a simple RC circuit across the R-W phase such that point x will only be at the same potential as point p for a balanced supply of correct phase sequence.

The solid state relay circuit is designed to release the relay at either a set out of balance voltage (x-p voltage), or a set undervoltage of the B-W phase (relay supply).

Special filtering circuitry is used to prevent high frequency or ripple control signals from affecting the operation of the relay.



Technical Data

SUPPLY VOLTAGE

415V nominal (50Hz/60Hz selectable)

POWER CONSUMPTION

Less than 4VA

OPERATE TIME

300ms/600ms approx (selectable Switch 4)

RESET TIME

300ms/600ms approx (selectable Switch 4)

OPERATING TEMPERATURE RANGE

-5 to 55 Degrees Celsius

RELAY ENERGISATION STATUS

LED indicates relay picked up (input healthy)

DIELECTRIC STRENGTH

2kV RMS (between input and output)

2kV RMS (between open contacts)

OUTPUT RELAY

1 changeover contact

DIMENSIONS

54(H) x 54(W) x 105(L)mm

50 x 50mm panel mount cutout

CONTACT RATING

8A/240V AC Resistive 1800 VA max.

8A/24V DC Resistive 200W max.

MECHANICAL LIFE

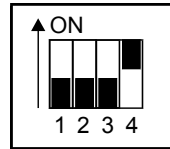
20x10⁶ operations minimum.

ELECTRICAL LIFE

1X10⁶ operations minimum.

2P340 Controls

MODE SELECTION SWITCHES



SWITCH 1 & SWITCH 2

ON	60Hz AC	Select for monitoring 60Hz AC
OFF	50Hz AC	Select for monitoring 50Hz AC

SWITCH 3

ON	80% 332V AC Undervoltage	Select for 3 phase undervoltage trip.
OFF	75% 311V AC Undervoltage	Select for 3 phase undervoltage trip.

SWITCH 4

ON	SLOW	SLOW response time
OFF	FAST	FAST response time

FRONT PANEL CONTROL

5 to 15% phase imbalance

INSTALLATION GUIDELINES

A PHASE SEQUENCE

- Wire **RED** wire (Phase) to terminal 1.
- Wire **WHITE** wire (Phase) to terminal 2.
- Wire **BLUE** wire (Phase) to terminal 3.
- Set imbalance to 15% & check operation
- If LED fails to illuminate, transpose the **RED** wire to terminal 2 & the **WHITE** wire to terminal 1.

B REDUCE IMBALANCE SETTING

- Check operation while reducing the phase imbalance setting to the lowest possible level which does not result in nuisance tripping.

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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