

250 Series DIN-rail and Wall Mounted Relays



Phase Sequence and Phase Failure

The Crompton phase sequence and phase failure protector relays are designed to monitor the correct phase rotation or sequence of three-phase, three or four-wire supply systems and provide protection against incorrect phase sequence, loss of one phase and under-voltage.

Operation

Rotating machines are particularly vulnerable to incorrect phase sequence. Three-phase motors can rotate in the wrong direction, potentially leading to physical damage or the risk of injury to personnel, yet voltage and current readings may appear normal. If one phase is lost because of a blown fuse, electric motors can continue to operate (single-phasing) which can result in severe electrical or mechanical damage. For permanent installations, this relay should be used to monitor the incoming supply, protecting all equipment against incorrect connection at initial installation or after maintenance work. Rotating machines that cannot tolerate reverse rotation or pose significant risk to personnel under this condition should be individually protected with this relay. The possibility of incorrect supply connection is much more likely in portable equipment or marine applications.

The phase sequence and phase failure protectors continuously monitor the three-phase supply. With the correct phase sequence applied, the front panel LED will illuminate and the output relay will be energised. An incorrect sequence or missing phase will de-energise the relay and the LED will be extinguished. If the supply drops below 85% of its nominal voltage, this condition will also cause a trip.

Note: If one phase is lost due to a blown fuse, some loads can re-generate the missing voltage. This relay can be used as a phase failure relay providing the regenerated voltage in the open phase is less than 70% of the nominal supply voltage. If there is the possibility of a higher regenerated voltage, the phase balance relay 252-PSF should be used.

Features

- Three-phase, three or four-wire
- LED trip indication
- Double-pole relay contacts
- Automatic reset

Benefits

- Monitoring of correct phase rotation
- Protection against incorrect phase sequence and loss of phase
- Under-voltage monitoring
- Prevents reverse rotation of motor driven equipment
- Ensures correct engine rotation
- Protects portable electrical equipment

Applications

- Marine panels
- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Process control
- Motor protection
- Transformers
- Overload protection

Approvals

CSA File Number 052952
(for monitoring voltage 300v
max single phase and three
phase)

Product Codes

Relay	Protection	ANSI no.	Cat. no.
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	47	252-PVR

Please specify system voltage, frequency and required options at time of ordering.

see 2nd page for selection

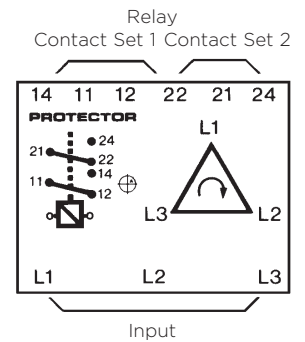
SEE ATTACHED FOR PART NUMBERS

Specification - Phase Sequence and Phase Failure

Nominal voltage	110V, 120V, 208V, 220V, 230V, 240V, 277V, 380V, 400V, 415V, 440V or 480V
Nominal frequency	50, 60 or 400Hz
Voltage burden	3VA approx.
Overload	1.2 x rating continuously, 1.5 x rating for 10 x seconds to symmetric
Trip level adjustment	Pre-set at 85% of nominal
Auxiliary voltage burden	4VA (max)
Output relay	2-pole change over
Relay contact rating	AC: 240V 5A, non inductive DC: 24V 5A resistive
Relay mechanical life	0.2 million operations at rated loads
Relay reset	Automatic
Operating temperature	0°C to +60°C (0°C to +40°C for UL models)
Storage temperature	-20°C to +70°C
Temperature co-efficient	0.05% per °C
Interference immunity	Electrical stress surge withstand and non-function to ANSI/IEEE C37 90a
Enclosure style	DIN-rail with wall mounting facility
Material	Flame retardant polycarbonate/ABS
Enclosure integrity	IP50
Model 252 dimensions	55mm (2.2") wide x 70mm (2.8") high x 112mm (4.4") deep
Weight	0.4Kg approx.

Connections

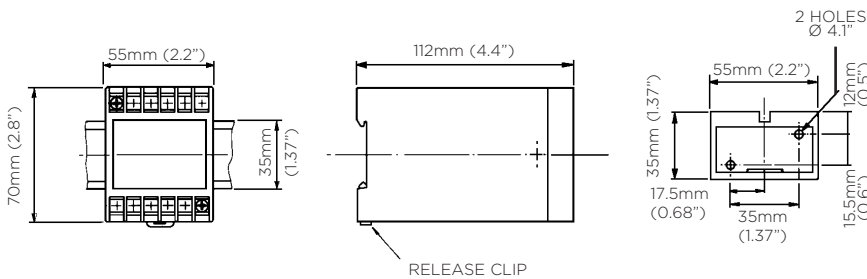
252-PVR



Note: No neutral connection is required.

SEE ATTACHED FOR PART NUMBERS

Dimensions Model 252



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RELAY	PROTECTION	INPUT	FREQUENCY	PART NUMBER
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	110 V L-L	50 HZ	252-PVRU-PMBX-C5
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	120 V L-L	60 HZ	252-PVRU-PQBX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	208 V L-L	60 HZ	252-PVRU-RMBX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	220 V L-L	60 HZ	252-PVRU-R4BX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	230 V L-L	50 HZ	252-PVRU-RQBX-C5
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	230 V L-L	60 HZ	252-PVRU-RQBX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	240 V L-L	60 HZ	252-PVRU-RRBX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	440 V L-L	60 HZ	252-PVRU-SHBX-C6
3-phase 3- or 4-wire	Phase sequence, under-voltage 85%	480 V L-L	60 HZ	252-PVRU-SEBX-C6