

# Ziegler

Redefine Innovative Metering

## Phase Balance Relay

Protector Trip Relay Series  
ANSI No. 47/27




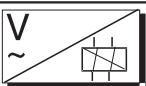
© Ziegler Instruments Order No. Phase Balance Relay Data sheet-EI.R0-920827-47-2013-EN



[www.ziegler-instruments.com](http://www.ziegler-instruments.com)

1 | 3

### Models Available

	
Function / System	Product Type
Phase loss and unbalance	252-PSF
Phase loss, unbalance and under voltage	252-PSG

### Applications

The phase unbalance feature will protect motors of any size against:-

Excessive temperature rise due to unbalanced supplies ( e.g. a 10% unbalanced supply can increase the temperature rise by 150%)

The regenerated voltage generated during a single phase failure when running at low load.

- Portable pumps
- Portable compressors
- Motors - Single Phasing
- Gensets - correct engine rotation
- All portable equipment
- All rotating machines

### Features

- Adjustable set point
- Adjustable time delay
- LED trip indication
- 2 pole relay contacts
- Internal Differential
- Auto Reset

### Introduction

Protector phase Balance relay provides continuous surveillance of a 3 phase, 3 or 4 wire system and protects against :-

- Phase Loss
- Phase Reversal
- Sequence
- Phase Unbalance
- System Under Voltage

The protector de-energizes a relay should any one of the above faults occur. It is fitted with an adjustable time delay to eliminate premature operation on short duration supply fluctuations.

A red LED indicates that the supply is within limits & that the output relay is energised. The relay will not energise if the supply is connected in the wrong sequence.

### Specification

System	: 3 phase, 3 or 4 wire
Frequency	: 50 or 60Hz
Nominal Voltage	: 100, 110, 120, 220, 230, 240, 380, 400, 415 & 440V (57 to 480V)

Burden	: 3VA approx.
Voltage Withstand	: 1.2 x rating continuously 1.5 x rating for 10 seconds

#### Set Points

Unbalance	: Adjustable 5% to 15%
Time Delay	: Up to 10 seconds adjustable, 30 seconds maximum.
Under Voltage (Type 252-PSG only)	: Internally preset at 15% of nominal voltage ( other values between 10% and 30% available on request)

#### Output Relay

Type	: DP changeover
Rating	: A.C : 240V, 5A non-inductive D.C : 24V 5A resistive
Operations	: 0.2 million at the above load
Reset	: Automatic

#### Other Specifications

Operating temperature	: 0°C to +60°C
Storage temperature	: -20°C to +70°C
Temp. 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	: IP 50
Model 252 dimensions	: 55mm(2.2")wide x 70mm(2.8")H x 112mm (4.4") deep
Weight	: Approximately - 0.4 kg

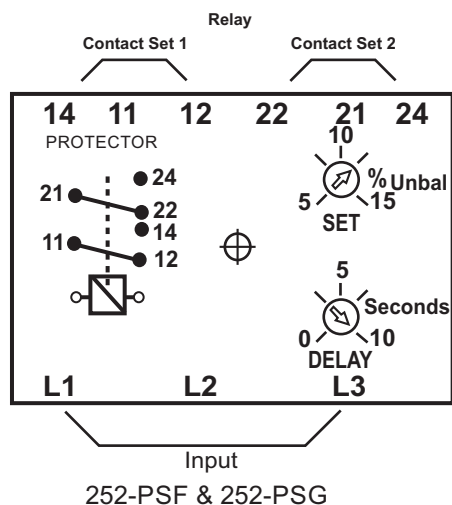
### Principle of Operation

The protector comprises monitoring circuits for voltage phase reversal and phase unbalance. Outputs from these circuits are fed to a comparator which changes state under fault conditions.

When the comparator trips, the output relay will de-energise after a preset time delay & the red LED will then no longer be lit.

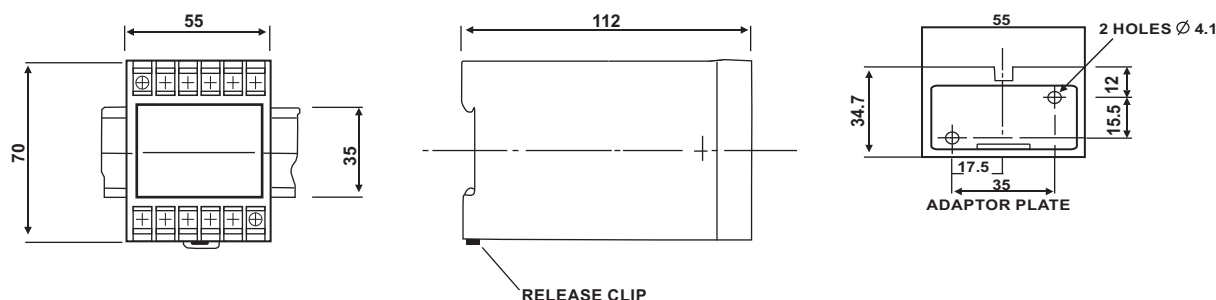
The relay and LED will automatically energise again when all the supply parameters have returned to safe and acceptable limits.

### Connection diagram



### Dimensions

Model 252



### Ordering Information

#### Please quote :

1. Product Type.
2. Function i.e. Under or Over.
3. Relays normally de - energise on under trip and energise on over trip.
4. Please specify standard or non standard trip. An energised relay is indicated by a "Lit" red LED. Setpoint can be factory adjusted to your requirements.
5. System Voltage and/or Current where applicable.
6. System Frequency.
7. Preset Differential where required.
8. Time delay where applicable.

## ZIEGLER INSTRUMENTS

Schnepfenreuther Weg 6, D-90425 Nürnberg, Germany.

TEL. (+49)(911) 38 492 45 E-MAIL info@ziegler-instruments.com  
FAX. (+49)(911) 32 26 212 WEBSITE www.ziegler-instruments.com

made  
in  
Germany

**Ziegler**

Redefine Innovative Metering