

# Ziegler

Redefine Innovative Metering

## Frequency Relay


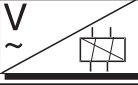
Protector Trip Relay Series  
ANSI No. 81



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



### Models available

	
Function / System	Product Type
Under Frequency	252-PHU
Over frequency	252-PHO
Combined Under & Over frequency (2 relays, 2 setpoints)	253-PHD

### Applications

Since with generators the speed is proportional to the frequency, this protection can be used to protect for :

- Under Speed.
- Over Speed.
- Under Frequency
- Over Frequency.
- Standby supplies for Industrial, Hospital or Marine use.
- Mains supplies
- Computer supplies
- Other control gear.
- Gensets - use these relays to monitor correct operation of the engine speed controller (Governor)
- Motors - Synchronous motors rotate at speeds proportional to line frequency.  
Use these relays to ensure correct running speed.
- Standby supplies - when the main A.C. supply falls outside the acceptable working frequency, these relays can initiate a change over to an alternate or standby supply.

### Features

- Adjustable setpoint
- Adjustable differential
- Internal time delay (factory settable)
- LED trip indication
- 2 pole relay contacts
- Energize/De-energize function swapping
- Auto Reset

### Introduction

frequency protectors provide continuous surveillance of the monitored circuit. When the frequency moves outside the set point limit, the relay will operate giving an alarm, control or tripping single. An illuminated LED indicates when the relay is energised.

### Specifications

#### Input

Nominal frequency	: 50, 60 or 400Hz
System Voltage	: 100, 110, 120, 230, 240, 400, 380, 415 or 440V ± 20% ( 57 to 480V )
Overload	: 1.2 x rated voltage cont. 1.5 x rating for 10 seconds, acc. to BS 6253

Burden	: 3VA
Time Delay (Optional)	: 30 seconds max (available on request)

#### Set point

Repeatability	: > 0.5% of full span
Range	: 40 / 60Hz and 50 / 70Hz adjustable
Differential	: 0.1 to 3.0Hz adjustable
Range	: 360 / 440Hz adjustable
Differential	: 10 to 30Hz adjustable

#### Output relay

Type	: D.P. Changeover
Rating A.C.	: 240V, 5A non-inductive
D.C.	: 24V 5A resistive
Operations	: 0.2 million at the above loads
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
Model 253 dimensions	: 75mm(2.9")wide x 70mm(2.8")H x 112mm (4.4") deep
Weight	: 252 case - approximately 0.4kg 253 case - approximately 0.6kg

### Product function

#### 1. Over Frequency models :

When the monitored frequency exceeds the setpoint, the relay will energize and the red LED will illuminate to indicate the trip condition. The relay will automatically reset once the monitored frequency falls below the setpoint minus the differential. When reset, the LED will extinguish and the relay de-energizes.

#### 2. Under Frequency models :

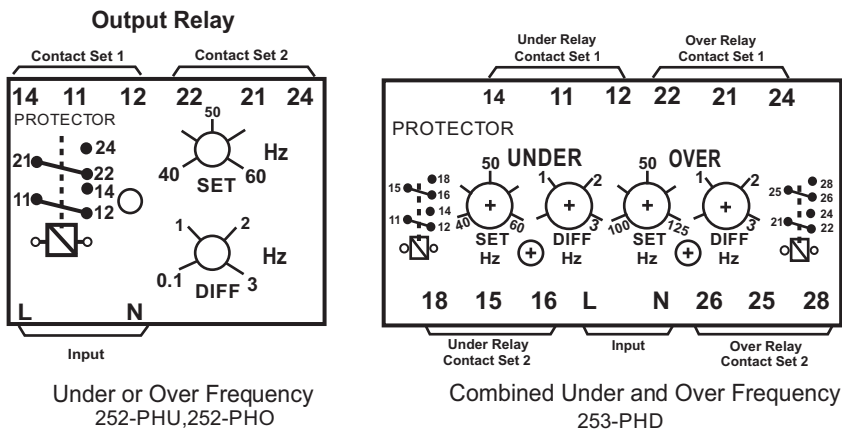
When the monitored frequency falls below the set point, the relay will de-energize and the red LED will extinguish to indicate the trip condition. The relay will automatically reset once the monitored frequency rises above the set point plus the differential. When reset, the LED will illuminate and the relay energizes.

3. On request, any product can be manufactured with the energize / de - energize function swapped.

### Options

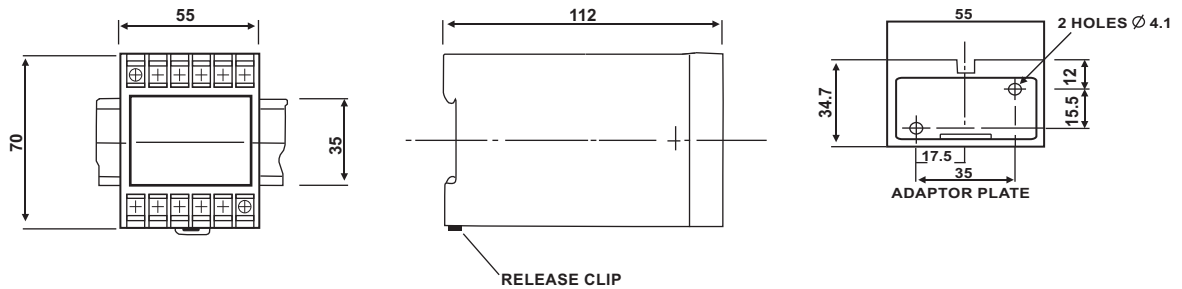
- Adjustment ranges – different adjustment ranges are possible for the set point and time delay controls.
- Time delay – internal fixed time delay before a trip occurs.
- Relay operation – standard models are fail safe, but the relays can be customised to energise or de-energise on trip.

## Connection diagrams

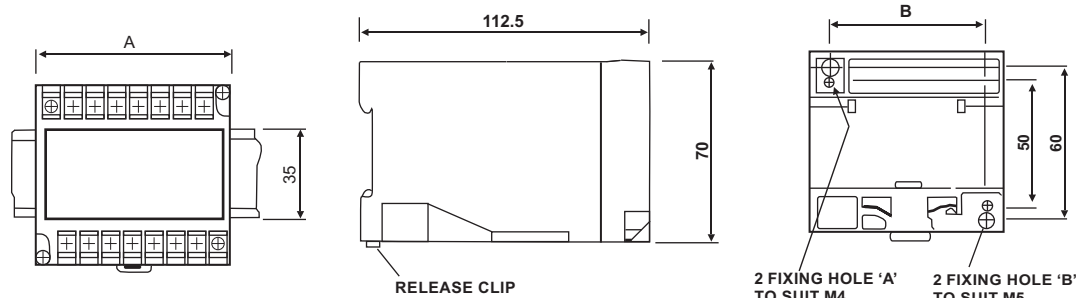


## Dimensions

Model 252



Model 253



Model	A	B
253	75	60

## Ordering Information

### Please quote :

- Product Type.
- Function i.e. Under or Over.
- Relays normally de - energise on under trip and energise on over trip.
- 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.
- System Voltage and/or Current where applicable.
- System Frequency.
- Auxiliary Voltage where required.
- Preset Differential where required.
- Time delay where applicable.

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