

## Combined Under/Over Voltage and Frequency Protector Trip Relay Series



© Ziegler Instruments Order No. Combined Under/Over Voltage and Frequency Relay Data sheet: EI.R0-920827-47-2013-EN



### Features

- Adjustable setpoint
- Adjustable time delay
- Internal differential
- LED trip indication
- Double pole relay contacts
- Automatic reset

### Benefits

- Over and under voltage monitoring
- Over and underspeed monitoring
- Start standby generators
- Operation of mains failure units
- Switching standby supplies
- Monitors genset AVR and excitation systems
- Nuisance tripping avoidance
- Customised options

### Applications

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

### Approvals

- UL recognised

## Combined Under/Over Voltage and Frequency

The 250 series combined voltage & frequency protectors provide continuous surveillance of the monitored circuit. When the voltage or frequency moves outside the set point limit the respective relay will operate giving an alarm, control or tripping signal. An illuminated LED indicates when the relay is energised. This protector can be used to protect against over and underspeed and over and under voltage.

### Operation

Combined voltage and frequency protectors provide the most popular relay functions in one convenient package. The products offer user adjustable trip point (setpoint) for voltage and frequency, plus adjustable time delay settings. The setpoint adjustment range is 25%, operating between 75% and 100% of the nominal supply for under voltage, and between 100% and 125% for over voltage. The frequency setpoint adjustment range is centred around the nominal 50Hz, 60Hz or 400Hz system frequency. The time delay setting adjustment range is typically 0 to 10 seconds, although longer delays are available.

As soon as the monitored signal moves outside of the setpoint limit, the time delay is activated, after which a trip will occur. The time delay prevents the relay from tripping for predetermined period to prevent nuisance tripping. The products also feature an internal differential (hysteresis) setting of 1% to reduce nuisance tripping if the measured signal is noisy or unstable. The product is available for single phase systems only, and draws its operating power from the measuring input.

### Over Voltage and Frequency

When the monitored value exceeds the setpoint and the time delay has elapsed, the relay will energise and the red LED will illuminate to indicate the trip condition.

### Under Voltage and Frequency

The relay will de-energise after the time delay has elapsed, and the red LED will extinguish to indicate the trip condition.

### Options

250 series protector relays offer various customised options to suit individual requirements. Please consult factory.

- Adjustment ranges - different adjustment ranges are possible for the setpoint and time delay controls.
- Differential - internally fixed value between 1% and 15%.
- Relay operation - standard models are fail safe, but the relays can be customised to energise or de-energise on trip.

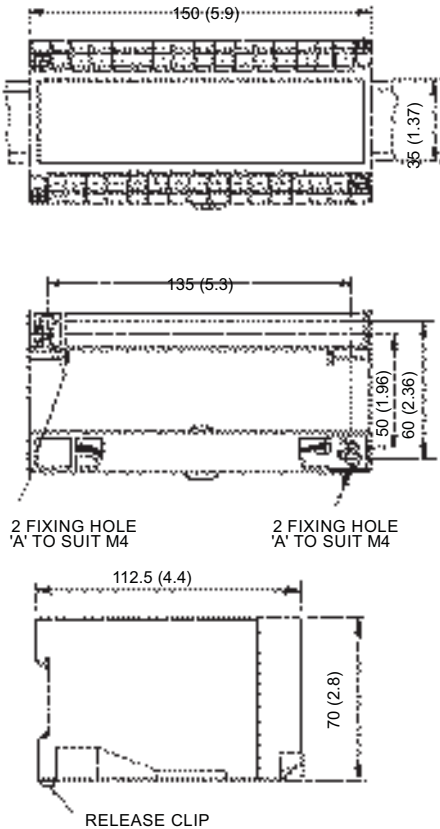
### Product Codes

Relay	Protection	ANSI	Catalogue
Single phase	Over and under voltage, over and under frequency	27/59, 81O/U	256-PHV

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

### Dimensions

#### Model 256

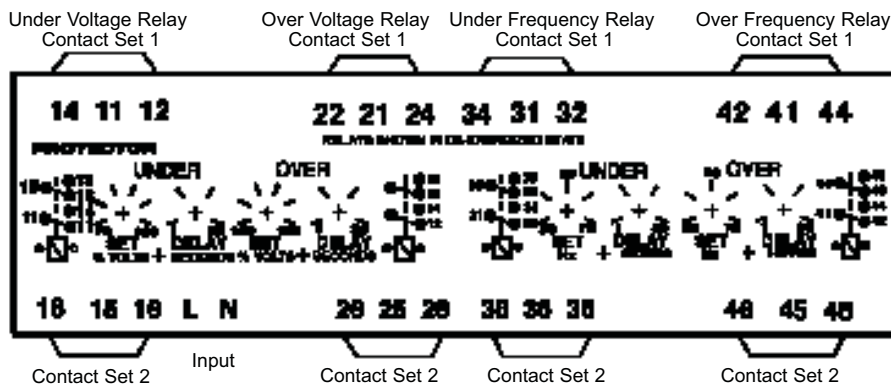


### Specification – Combined Under/Over and Frequency

Nominal Voltage	100V, 110V, 120V, 208V, 220V, 270V, 280V, 400V, 415V or 440V
System Frequency	40/60Hz, 50/70Hz or 360/440Hz
Frequency Differential	Preset at 0.1Hz (10Hz for 400Hz unit)
Voltage Burden	3VA
Overloads	1.2 x rating continuously, 1.5 x rating for 10 x seconds
Set Point Repeatability	>0.5% of full span
Differential (Hysteresis)	Fixed internally at 1%
Trip Level Adjustment	Over voltage: 100 to 125% Under Voltage: 75 to 100% of nominal input voltage
Time Delay	Adjustable 1 to 30 seconds
Output Relay	4 independent double 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
Compliant With	EMC, LVD, Safety Standard IEC 414 UL File No: E113067 recognised up to 600V
Dimensions	150mm (5.9") wide x 70mm (2.8") high x 112mm (4.4") deep
Weight	1.0Kg approx

### Connections

#### 256-PHV



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