

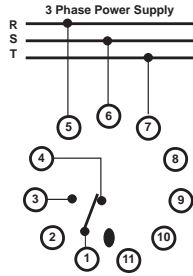


# 3 Phase Monitoring Relay - Phase Sequence & Phase Failure Detection

# SP 433



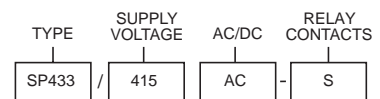
### WIRING EXAMPLE (requires optional S3-B base)



## Application Examples

- Protection against phase reversal
- Protection against phase failure
- Detection of phase failure and phase reversal on voltage transformers of HT switchgear.
- Overhead line supervision in rural areas.
- No sensitivity adjustment
- **Not suitable for motor protection - refer SP430.**

### ORDERING CODE



Note: Use SP430 for motor protection applications

## Technical Specification

### Power Supply:

Supply voltage (phase-to-phase):  
110, 220, 380, 400, 415, 525VAC  $\pm 20\%$

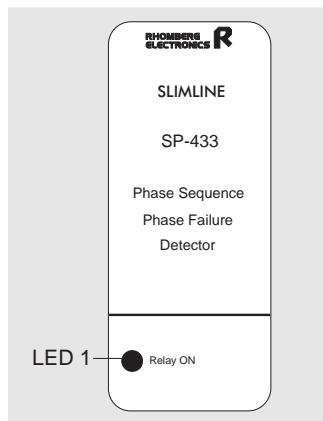
### Voltage Sensing:

Repetitive accuracy: 1%  
Hysteresis : 2% fixed (relative to its supply voltage)

### Response:

Time delay on trip: 1 second (approx.)  
Time delay on recovery: 1 second (approx.)

## Description of Controls



**LED 1:** The green LED marked "Relay ON" illuminates when the relay is energised, ie. the power supply is balanced and in the correct sequence.

**Fault Detection:** When power is applied, the relay energises after approximately one second, provided all three phases are balanced and in the correct sequence. The relay will de-energise when any one of the following faults occur:  
- reversal of phase sequence.  
- failure of one or more phases ("single phasing") even with the presence of up to 80% regenerated voltage.

The phase failure level for any given phase is fixed at  $\pm 20\%$  below the nominal phase voltage, with the other two phases at nominal. Otherwise the failure is related to the combined imbalance of all three phases, which is fixed at approximately 7% NPS.

**Note:** The unit will not react to a balanced under-voltage or over-voltage condition on all three phases. For over-/under- voltage protection refer to SP 231.

## Operational Diagrams

SP433 3-Phase Sequence / Failure Monitoring

