

## Star Delta



### Description

The unit is designed to enable star-delta starters to switch between star and delta safely. The star-make period can be adjusted with the front potentiometer. A set pause time of  $\pm 80$ ms prevent contractors operating simultaneously.

### FEATURES

- Oscillator control time circuit
- Potentiometer adjustable time setting
- Failsafe operation
- Repeatable deviation:  $< 1\%$
- LED indication for STAR and DELTA outputs
- Output 10A SPDT

### Time Specifications

Time Ranges 1 - 30 sec  
3 - 60 sc  
10 - 180 secs

Delay between  $\pm 80$ ms  
Star & Delta Outputs

Range Accuracy  $\leq 0.5\%$

Scale Accuracy  $\pm 5\%$

Repeat Accuracy  $\pm 1\%$

Time Variation  $\leq 0.05\% / V$   
within rated power  
supply and ambient  
temperature  $\leq 0.2\% / ^\circ C$

Reset Time 500 ms

### Output Specifications

Output Specifications SPDT

Rated Isolation 6000 VAC  
(contact / electric)  
Voltage 1000 VAC  
(contact / contact)

Nominal Rate in AC1 1500 VA  
(Ag-Ni)

Rated Current 10A

Rated Voltage 250V

Mechanical Life  $10 \times 10^6$  cycles

Electrical Life  $110 \times 10^3$  cycles (at max load)

Operation Frequency  $\leq 1800$  cycles/h

### Supply Specifications

Power Supply AC Type 110, 230, 400V  
(Galvanic) 525V  $\pm 10\%$   
50 / 60 Hz  $\pm 5$ Hz

Isolation 4kV

Consumption  $\pm 3$ VA

$\pm 6$ VA 525 V

Power Supply DC Types 12,24,48 V  $\pm 10\%$   
(Non-galvanic)

Isolation None

Consumption  $\pm 100$  mA

### General Specifications

Power ON Delay  $\leq 300$  ms

Power OFF Delay  $\leq 200$  ms

Indication for

Star ON LED green

Delta ON LED green

Environment

Degree Of Protection IP 20

Operating Temperature  $-10$  to  $+50^\circ C$

Storage Temperature  $-50$  to  $+85^\circ C$

Weight 200g

## Star Delta

### Mode of Operations

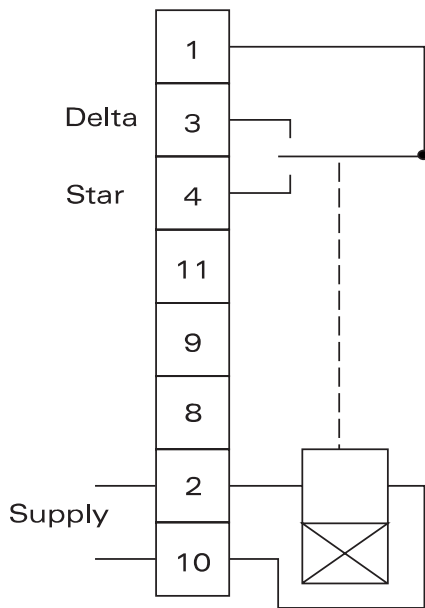
#### Function: Star Delta

On applying supply, contact 1 & 4 is made and the set STAR time period begins. On expiry of time period contacts 1 & 4 opens and remains in a neutral position for  $\pm 80\text{ms}$ , after which DELTA connection is made between contacts 1 & 3. The relay remains in this position until supply is removed at which time it will de-energize to a center-off position.

#### Example

Timed switching on a Star/Delta starter to prevent simultaneous operating of the contactors.

### Wiring Diagram



### Operations Diagram

