

**Device Introduction**

Star-Delta monitoring relay is a convenient device to activate cage-rotor motors with converting star to delta protected to grid's electricity fluctuation.

MODEL : MRB-SD
CODE:13B6
WEIGHT : 340 gr
(72x86x60) mm
IP 30

SCAN QR TO VIEW
THE PRODUCT

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Features

- Protection
 - Under/ Over Voltage
 - phase sequence and asymmetry
 - Separate Phase loss
- 6 indicators to announce
 - ON: Slow blinking : grid's electricity
 - Fast blinking : delay-on
 - Fixed light : device is ready to start
 - F: Slow blinking : phase asymmetry
 - Fast blinking : over voltage
 - Fixed light : under voltage
 - P: No phase sequence-phase loss
 - M: M relay connection
 - Δ: star relay connection
 - Δ: delta relay connection
- 3 screws for adjusting
 - UNBALANCE: adjusting asymmetry (7-25%)
 - ON DELAY: 2-30sec
 - STAR TIMER: connection time for star relay (2-30sec)
- No change in parameters affected by impacts of panel's contactor

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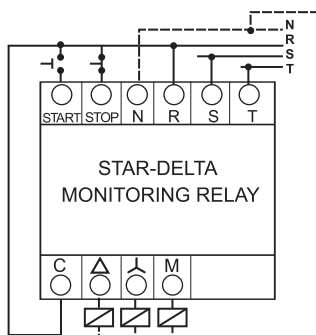
Technical specifications

- Supply Voltage : 180-250VAC / T-N / 50-60Hz
- Input voltage : 300-500VAC / 3PH / 50-60Hz
- Disconnection for
 - Over Voltage : 440V
 - Under Voltage : 300V
 - Asymmetry : 7-25%
- Off Delay : 3sec
- Time interval between star relay disconnection and delta relay connection :50msec
- operating condition
 - Temperature: -20°C .. +65°C
 - Humidity : 70%
- Output : three 16 Ampere relay

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Installation Instruction

First install star-delta monitoring relay on rail inside panel. Use the rail embedded in the box if installation location has no rail. Then wire based on following schematic.



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Device Operation

By connecting power to device, ON indicator (green) starts blinking slowly and if STOP terminal is connected to one of phases, ON indicator (green) blinks fast.

Note: change the place of 2 input phases when P indicator (red) is turned on through connecting input power.

After passing 2-30sec that is adjustable by adjustment screw named STAR TIMER, Δ relay will be disconnected and Δ indicator turned off. Δ relay will be connected and Δ indicator (yellow) turned on after 50msec time delay.

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Device stop working

- **Manual:** by pressing STOP switch (phase disconnects from STOP terminal), output gets disconnected quickly.
 - **Automatic:** if voltage increase (higher than 440V), voltage decrease (lower than 300V), phase loss, phase asymmetry or no phase sequence faults happen, output gets disconnected after 3 seconds time delay.
- Note:** device sensitivity value for phase asymmetry is adjustable by UNBALANCE screw from 7% to 25% that is adjusted considering grid's electricity status and motor condition.
- If device stop working is because of perturbations in grid's electricity, this position will be continued up until grid's electricity normalizes.
- On condition that device stops working, related indicator status behaves based on following table and others will stay turned off.**

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Stop reason	Related indicator status
manual	Indicator ON slow blinking
Over Voltage	Indicator F fast blinking
Under Voltage	Indicator F fixed light
Phase asymmetry	Indicator F slow blinking
No phase sequence	Indicator P fixed light

Note: monitoring relay works based on voltage recognition. Recognizing 1 or 2 phases loss and asymmetry or other parameters occur according to under voltage or over voltage for each of 3 phases and their summation.

In some motors when one of grid's phases disconnects through excessive return voltage which is equal to cut-off voltage, star-delta monitoring relay is not able to recognize it. So it is suggested to use load controller or bi-metal.

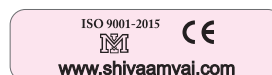
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3 year no question asked guarantee under these conditions;

- 1-at most it should be within 3 years from the date printed on the label of the product
- 2-the label on the product should be safe and sound

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