

EYR Star - Delta Relay User Manual



Caution

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE ETNA STAR DELTA RELAY.

1. Product Information

Etna Star Delta Relay is a digital relay designed to start three-phase electric motors safely with the star delta starting system. It is user friendly with its LED display, easy to-use menu, and specially developed software. The star time and delay time can be set easily and precisely as required via the menu. The LED display shows the star time countdown and the notification LEDs show the status of the star or delta relays.

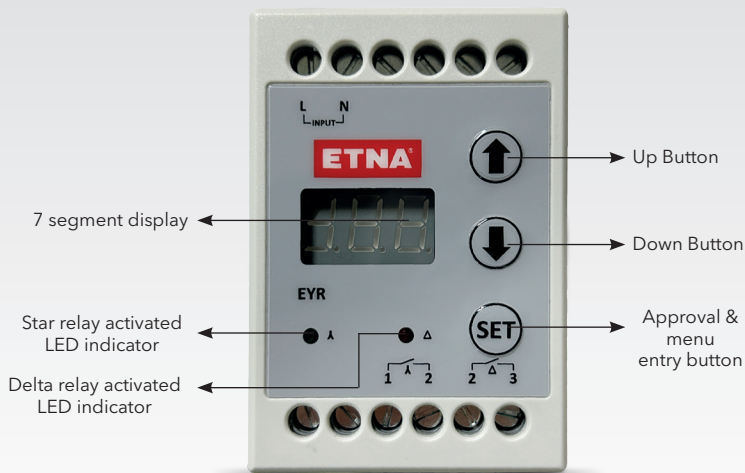


Figure 1. Etna Star Delta Relay Exterior Appearance

2. General Features

- User-friendly, easy-to-use menu
- Star time setting menu
- Star time can be adjusted in the range of 1.0 - 60.0 sec.
- Delay time setting menu
- Delay time can be adjusted in the range of 20 - 500 ms.
- 3-digit 7-segment LED display
- 8-bit microprocessor-based design
- Operating frequency: 16Mhz
- 50/60 Hz, operating voltage 190 - 260 V AC
- 2 normally open (NO) relay outputs
- 3A 250 V AC / 30 V DC Relay contact rating
- 1 star, 1 delta relay status information LEDs
- Display shows the progress of the countdown
- Operating temperature: -10 ... +50°C
- Net weight 150 g
- Protection class: IP20
- Suitable for in-panel rail mounting

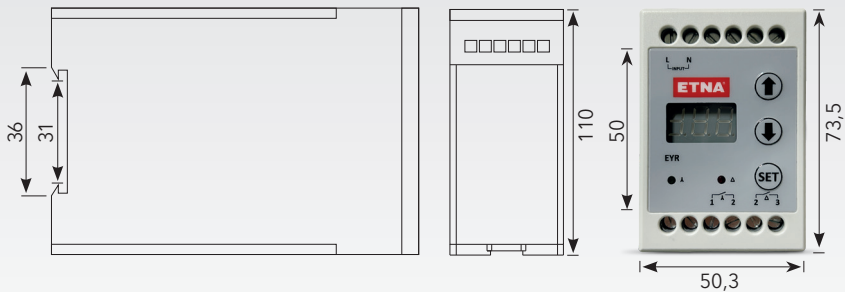


Figure 2. EYR Dimensions

3. Front Panel Descriptions and Dimensions

- Up / Down Buttons: Used to navigate in the menu on LED display and to increase/decrease the numerical values.
- Set Button: Used to access the menu and save the adjusted parameters. Press and hold the set button for 3 seconds to enter the menu. After the settings are made, press the Set button again to save.
- Star LED: This LED is on as long as the star relay is energized. When the EYR relay is energized, the star LED lights up and at the end of the time set in the Star Time (YS) menu, the star relay de-energizes and the star LED goes out.
- Delta LED: This LED is lit all the time the delta relay is energized. As soon as the EYR relay is energized, the star LED lights up and at the end of the time set in the Star Time (YS) menu, the star LED goes out and the time set in the Delay Time (GS) menu starts counting down. At the end of the delay time, the delta relay is energized and the delta LED is on. The delta relay remains energized and the delta LED remains on until the relay is de-energized.

4. Menus



Figure 3. Star process



Figure 4. Delta process

When the Etna star delta relay is energized, the star relay is also energized, the star LED lights up, and the star time set on the LED display counts down. (Figure 3.) At the end of the star time, the star relay de-energizes, the star LED turns off, and the delay time begins counting.

At the end of the delay time, the delta relay is energized and the delta LED is on. The Delta relay remains energized until the relay is de-energized and the delta LED remains on. (Figure 4.)

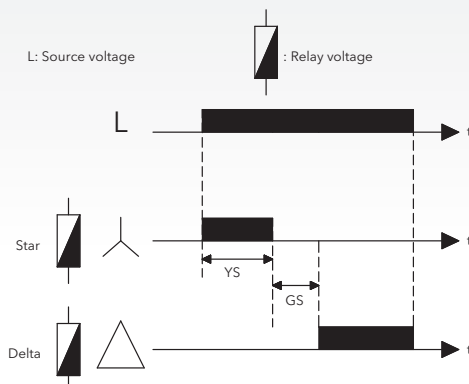


Figure 5. EYR time flow

4.1. Star Time Program



Figure 6. Star Time Program screen



Figure 7. Star Time program setting screen

The "YS" program is the parameter that sets the time for the star contactor relay to remain energized in the star delta starting system.

Press and hold the Set button for 3 seconds to activate the menu. When the menu is entered, the YS program is displayed. Press the Set button again to enter the YS program setting screen and set the desired time in seconds with the Up and Down buttons and save by pressing the Set button again. It can be set in the range 1.0 - 60.0 seconds.

4.2. Delay Time Program



Figure 8. Delay time Program screen



Figure 9. Delay time program setting screen

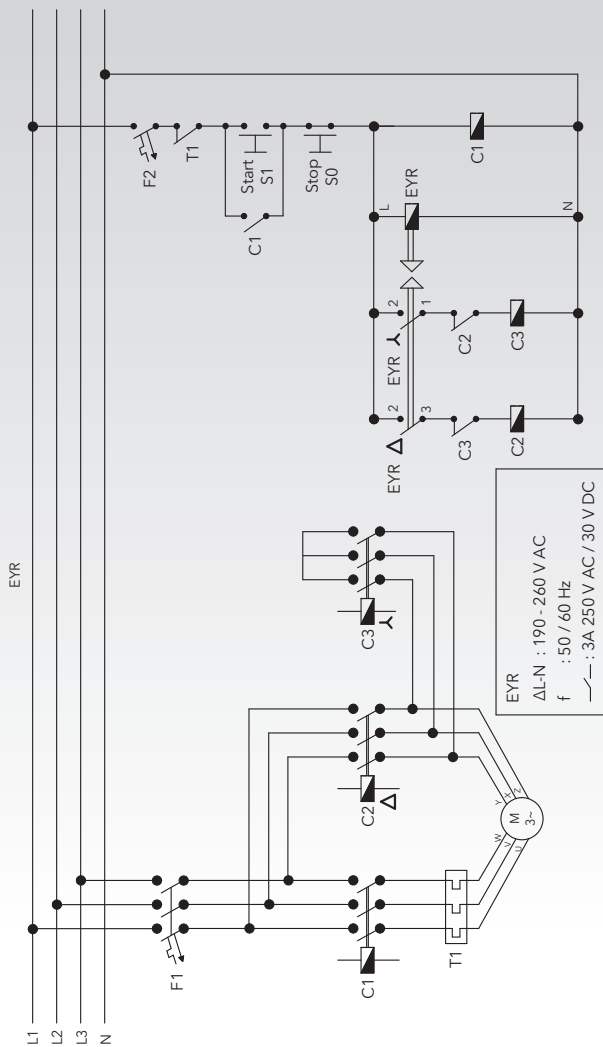
The "GS" program is the parameter used to set the delay time between the release of the star contactor relay and the energized in the delta contactor relay.

Press and hold the Set button for 3 seconds to activate the menu. When the menu is entered, the YS program is displayed. The down button is used to enter the GS program and the set button is used to enter the GS program setting screen. Set the desired delay time in seconds with the Up and Down buttons and save by pressing the Set button again. 20 - 500 ms. can be set in the range.

5. Operation and Maintenance

- Disconnect the power supply and put on the necessary protective equipment before working on the device.
- Check that the electrical connections on the ETNA star-delta relay are not loose.
- A residual current relay and appropriately rated fuse should be used in the power supply for the ETNA star delta relay.
- Check all terminal connections and functions during maintenance.
- Ensure there is no abrasion, puncture, or color change resulting from heating in the electrical cables.
- Always follow the pump and motor control instructions.
- Contact the authorized technical service for more detailed information.

6. Circuit Diagram



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