ETNA®

EHR - Speed Control Relay
Product Introduction and User Guide

CAUTION: Read the information in this manual thoroughly before using the Etna Speed Control Relay

1. Product Information

The Etna speed control relay is designed to control the actuator connected to the throttle of internal combustion engines. Actuator control allows the engine to be started safely at low speeds then sped up automatically at the end of the time set by the relay.. The Etna speed control relay is user-friendly with its simple operation and customized software. Use the menu to set how long the internal combustion engine will run at low speed. The LED display shows the progress of the low-speed countdown while the LED indicators allow you to monitor status instantly.

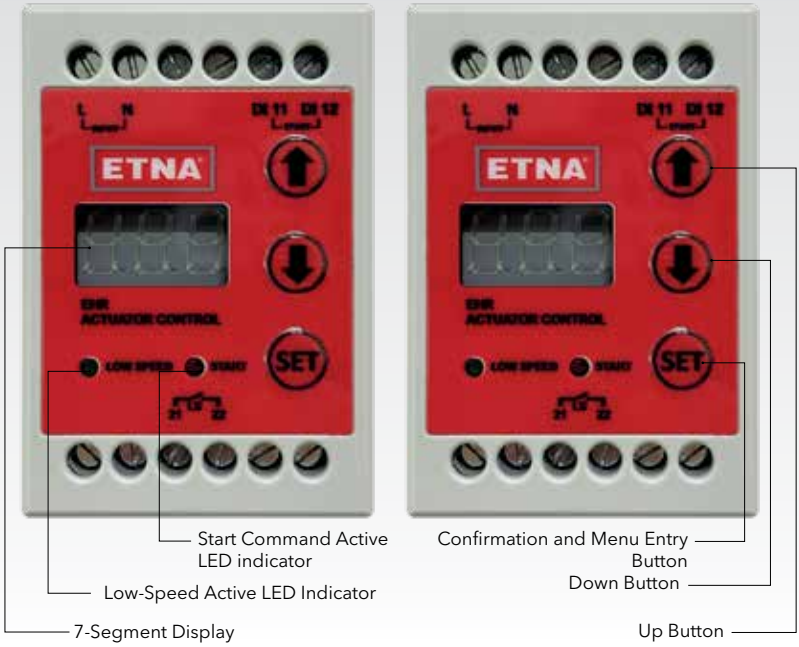

Figure 1. Etna Speed Control Relay Exterior Appearance

2. General Features

- User-friendly, easy-to-use menu
- Low-speed operation time setting menu
- Low-speed operation time can be set in the range of 1 - 120 seconds
- 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 low-speed, 1 status LED indicator for start input
- Display shows the progress of low-speed countdown
- Operating temperature: -10 … +50°C
- Net weight 150 g
- Protection class: IP20
- Suitable for in-panel rail mounting

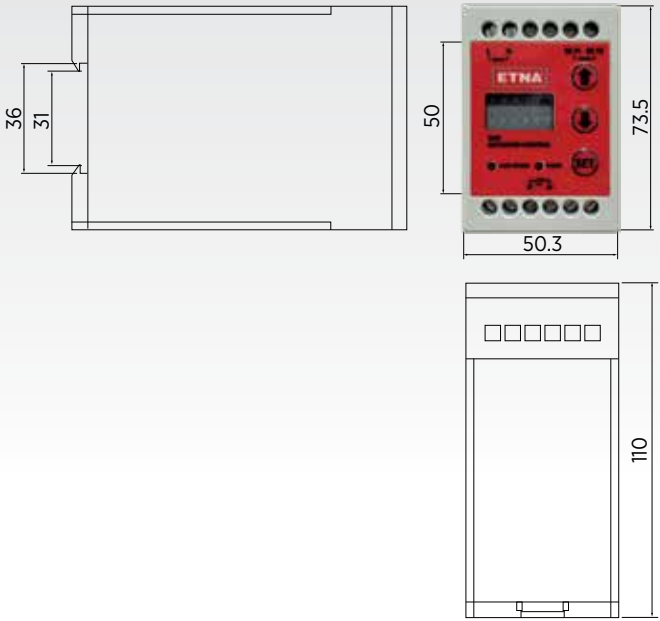

Figure 2. EHR Dimensions

3. Front Panel Descriptions and Dimensions

- **Up / Down Buttons:** Use these buttons to increase or decrease the numerical values in the menu.
- **Set Button:** Use this to enter the menu and save the set parameter. Press and hold the set button for 3 seconds to enter the menu. In the menu that appears, first set the low-speed time with the up and down buttons, then press the set button again to save it.
- **Low-Speed LED:** This LED is lit when the LS (Low-Speed) relay is energized. When the engine is not running (EHR relay start inputs are in the closed position), the low-speed LED is lit and the LS relay remains energized, i.e. the relay contacts are in the closed position. When the start command is given to the EHR relay (EHR relay start inputs are in the open position), the countdown will begin on the LED display. At the end of the time, the LS relay will de-energize and the Low-Speed LED will turn off.
- **Start LED:** The Start LED is lit when the EHR relay start inputs (DI 11 - DI 12) are open circuit (when a start command is given to the EHR relay). When the EHR relay start inputs (DI 11 - DI 12) are closed circuit, the relay is in the low-speed state. When the engine is running, the EHR relay start inputs are open and the Start LED is lit.

4. Menus

Figure 3. EHR Relay Low-Speed Display

Figure 4. EHR Relay High-Speed Display

The Etna speed control relay is used to control the throttle actuator of an internal combustion engine. It allows the actuator to move after the time set in the menu.

The Etna speed control relay starts counting down the time via the start inputs. When the start inputs (DI 11 - DI 12) are normally closed, the EHR relay waits in the low-speed state. When the engine is started, the NC (normally closed) relay indicating that the engine is running engages and the contacts connected to the start inputs (DI 11 - DI 12) of the EHR relay will open. When the start inputs of the EHR relay are open, the start LED is lit and the display will count down the time. At the end of the time set in the menu, the Low-Speed LED will go out, the LS relay contacts will open, and the display will show Run. As long as the motor is activated, the contacts of the LS relay will remain open and the motor will continue to run at maximum speed. When the demand has ended and the motor is deactivated, the start inputs of the EHR relay are short-circuited again and the wait continues in low-speed mode.

4.1 Low-Speed Running Time Program

Figure 5. Low-Speed Program Screen

The low-speed running time program is the program that tells the engine how many seconds to run at low speed after starting. At the end of the time, the EHR LS (low-speed) relay contacts will open and the driver will accelerate the engine to maximum speed.

Press and hold the Set button for 3 seconds to activate the menu. (Figure 5.) Once in the menu, use the up and down buttons to set the desired time in seconds and press the set button again to store the setting (Figure 6.).

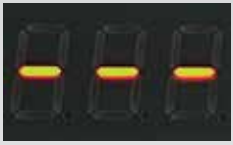

Figure 6. Main Screen

The slow running time program can be set in the range of 1 - 120 seconds. For internal combustion engines connected to the fire pump, this time should not be set to more than 15 seconds.

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 speed control relay are not loose.
- Use a suitably rated fuse in the power supply to the Etna speed control 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

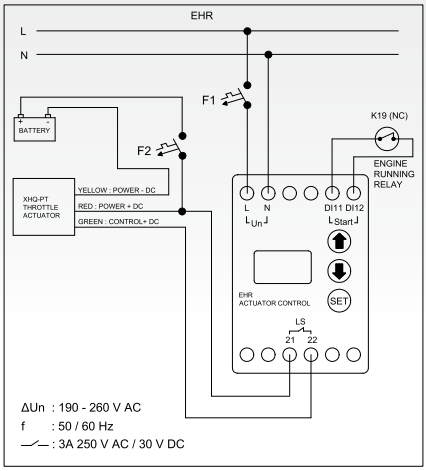

Figure 10. EHR Circuit Diagram

Note

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