ETNA®

Hydropan
Single Operation and Maintenance Manual

1. Product Information

Hydropan-Single Control Panel is used to control , display modes and faults of single pump booster systems, has 7 segment display and uniquely designed electronic main board. In addition to the electronic board and 7 segment display, the panel also has No Water / Pressure Switch / Fault warning leds as well as Up / Down buttons used to surf in menus , Approval button to confirm parameter changes and ON / OFF button . System parameters can be set easily by using Up / Down / Approval buttons located on the front casing.

Figure 1. Hydropan- Single External View

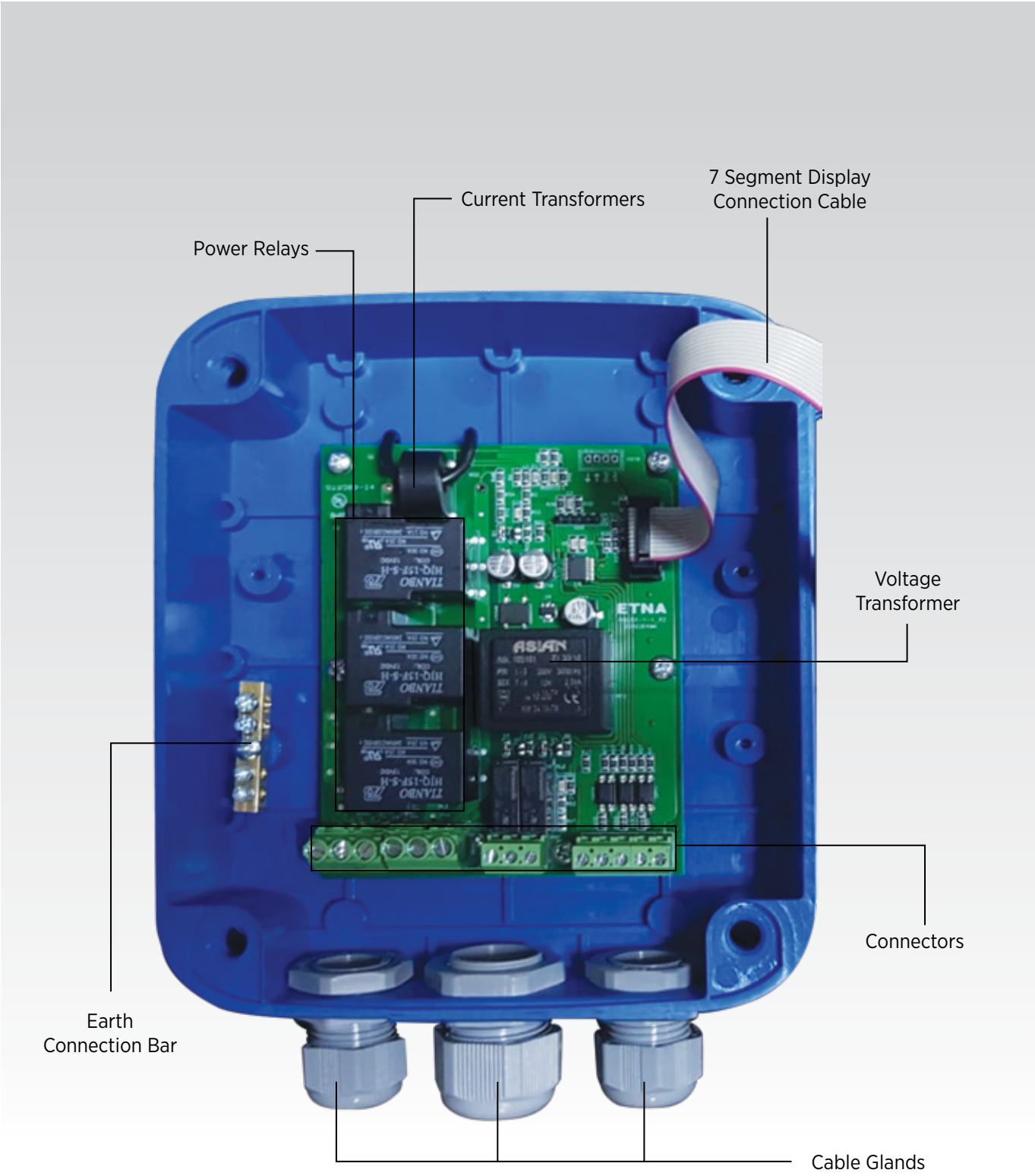

Figure 2. Hydropan Single Internal View

2. Technical Specifications

- Compatible with booster, deep well and waste water applications
- User friendly interface
- 8 bit microcontroller based design tabanlı tasarım
- 7 Segment display
- 3 phase voltage measurement and display on screen
- High and low voltage protection setting
- High and low current protection setting
- Current and voltage fault delay time setting
- General Fault/ No Water and Pressure Switch signal warning leds
- Pump running currents display on screen during operation
- Ability to Reset faults
- Dry running protection with floater
- Additional dry running protection using minimum current protection algorithm
- Display all faults on screen
- Audible fault warning with buzzer
- Fault history
- Booster and discharge operating modes
- Password protection
- Pump running and fault dry contacts
- Phase loss and phase sequence protection

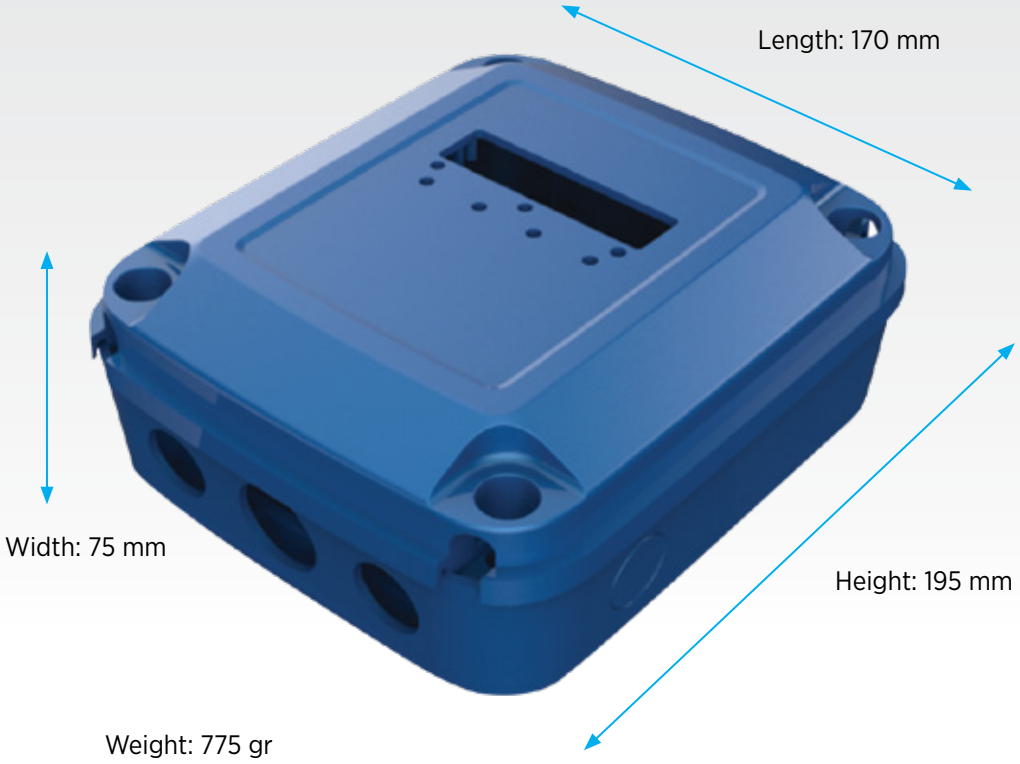

Figure 3. Panel Dimensions

3. Control Board Front Panel

- **General Fault Led:** This led is ON together with written fault code on 7 segment display when low current , high current, low voltage and high voltage protections are active.
- **Up / Down Buttons:** These buttons enable to surf within menus on 7 segment display and they are used to set values of numerical parameters. In addition to this, the fault occured on the system can be reset while pressing these buttons together for 5 seconds
- **Approval Button:** This button enables to enter submenus and save the parameter already set values.
- **Switch Led:** This led is ON when the pressure swith on the system is active.
- **ON/OFF Button:** This button is used to start-up and switch-off the panel OFF is written on 7 segment display when the panel is switched-off and there is power supply on the system.

4. Menus

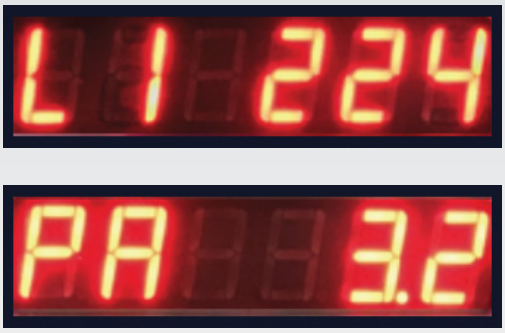

Figure 4. Panel Main Operating Screen

Voltage value between L1-L2-L3 and neutral is displayed in sequence as seen on the left hand side when there is no run signal. In case there is run signal and system starts operating, pump current is displayed.

Figure 5. Password Menu

a. Password Menu

When the "Confirm" button is pressed in the main operation screen, the password menu on the left appears. In the password menu, “132” is entered as the password with the “Up / Down and Confirm” buttons, and the menu is entered by pressing the confirm button again. The password is valid for 2 minutes.

Figure 6. High Voltage Limit Setting Menu

b. High Voltage Protection Setting Menu

After the password is entered correctly, the High Voltage Limit Setting Menu will appear on the screen. By pressing the "Confirm" button again, it is entered into the menu and the high voltage protection value is set with the "Up / Down" buttons. The limit value is set at the factory and changing this value is not recommended.

Figure 7. Low Voltage Limit Setting Menu

c. Low Voltage Protection Setting Menu

By pressing the "Up" button while in the menu, the Low Voltage Limit Setting Menu (dG) seen on the left is accessed. By pressing the "Confirm" button again, the menu is entered and the low voltage protection value is set with the "Up / Down" buttons. The limit value is set at the factory and changing this value is not recommended.

Figure 8. High Current Limit Setting Menu

d. High Current Protection Setting Menu

By pressing the "Up" button while in the menu, the High Current Limit Setting Menu (YA) seen on the left is accessed. The menu is entered by pressing the "Confirm" button and the high current protection value is set with the "Up / Down" buttons. High current limit value should be set according to the power of the electric motor.

Figure 9.Low Current Limit Settings Menu

e. Low Current Protection Setting Menu

By pressing the “Up” button while in the menu, the Low Current Limit Setting Menu (dA) seen on the left is accessed. By pressing the "Confirm" button, the menu is entered and the desired low current protection value is set with the "Up / Down" buttons. The low current limit value should be set according to the power of the electric motor. The panel has low current automatic reset feature. When a low current error occurs, the panel makes automatically resetting the error at increasing intervals of 2,8,18,32 and 50 minutes. If low current error occurs again as a result of resetting, the system is blocked and cannot be operated again. The "Block (bL)" error must be reset manually by holding down the Up / Down buttons.

Figure 10. Error Delay Time Setting Menu

f. Delay Time Setting Menu

By pressing the "Up" button while in the menu, the Error Delay Time Setting Menu (GS) seen on the left is accessed. Error delay time, is the time until the panel gives a warning after detecting an error in the system. It is entered into the menu by pressing the "Confirm" button, and adjusted as with the "Up / Down" buttons. It is set to 3 seconds in the factory settings, it is not recommended to change it except for special applications.

Figure 11. Operation Mode Selection Menu

g. Operation Mode Selection Menu

By pressing the "Up" button while in the menu, the Pump Operation Mode Selection Menu (CS) seen on the left is accessed. By pressing the "Confirm" button, you can enter the menu and select the mode with the "Up / Down" buttons. When "0" is selected, "booster mode" becomes active and when the panel is energized for the first time, the active mode is shown as "hid" at startup. In this mode, the panel can be used in booster, wastewater and deep well applications. The pump is started and stopped by the pressure switch connected to the "SALTER (switch)" terminal. The water level of the reservoir is controlled with the help of the floater connected to the " FLATOR (float switch) " terminal and when the water decreases and the float switch goes down, the pump is stopped by giving a "No Water (SY)" alarm.
When "1" is selected in the CS menu, "discharge mode" becomes active and when the panel is energized for the first time, the active mode is shown as "bos" at startup. "1", the discharge mode, is used in deep chambers, in applications where it is desired to drain all the water in the chamber. With the help of float switch connected to the "FLATOR (float switch)" terminals, the pump, which is operated when the reservoir is filled with water up to the maximum level, is stopped when the water drops to the minimum level and no alarm is given. When the water reaches the maximum level again, the pump starts automatically and this cycle continues. Overflow control can be done with the help of an overflow level switch connected to the "SALTER (switch)" terminal. In this mode, when the "SALTER (switch)" input is short circuit, "Overflow Error (th)" is given for warning purposes, but the pump is not prevented from running.

Figure 12. Fault History Menu

h. Fault History Menu

By pressing the "Up" button while in the menu, Fault History Menu (A) seen on the left is accessed. By pressing the “Confirm” button again, the menu is entered and the fault history can be viewed with the “Up / Down” buttons. 99 failure histories are stored and the most recent failure is transferred to row number 1.

5. Maintenance and Operation

Fuse and residual current relay which is suitable for the present motor power must be used in the energy supply of the control panel. The system must be grounded.

Please cut-off the power supply before any intervention

- Check and make sure that there is no loosen connections on power supply and earth connection.
- Check and make sure that there is no damage , hole or color change caused by overheating on cables.

6. Troubleshooting

ERROR CODE	FAULT	ACTION
htA YG	**HIGH VOLTAGE FAULT**	• Check the mains input voltage, phase-neutral values for all phases. • When the high voltage protection value defined with "YG" is exceeded, this error is given. Check the "YG" value. • Check the mains voltage, cable and terminal connections.
htA dG	**LOW VOLTAGE FAULT**	• Check the mains input voltage, phase-neutral values for all phases. • When it goes below the low voltage protection value defined with "dG", this error is given. Check the "dG" value. • Check the mains voltage, cable and terminal connections.
htA FS	**PHASE SEQUENCE FAULT**	• When the phase sequence is reverse, the phase sequence error code "htA FS" is written on the screen and the system does not work. Change the phase sequence from the input and make sure that the motor rotates in the correct direction.
htA FY	**PHASE LOSS FAULT**	• One or more of the phases do not come to the energy supply terminals. • Check the mains input voltage, phase-neutral values for all phases. • Check whether there is any imbalance or phase loss between phases.
htA YA	**HIGH CURRENT FAULT**	• Before taking the measurement, make sure that there is no mechanical failure in the pump. • Test the current drawn by the motor, measure it with the help of an ammeter and compare it with the value indicated on the motor nameplate. • Compare the "High Current Protection" value adjusted with the "YA" parameter with the value specified on the motor nameplate. • Check the motor cable and terminal connections. • Verify that the overcurrent protection value (YA) is 10% above the maximum operating current of the pump at full load and that the pump operates properly.
htA dA	**LOW CURRENT FAULT**	• Before taking the defined measurements, make sure that there is no mechanical failure in the pump and that the motor pump group works properly. • Make sure that the pump suction and discharge valves are not closed. • Make sure there is water in the reservoir. • Make sure that there is no air in the system. If there is air, evacuate the air. • Check the "Low Current Protection" value adjusted with the "dA" parameter. • While the engine is running, close the suction valve and see how far the current has dropped and note it. Make sure that the mains voltage is between 380-400 V during the measurement. • Defined Low Current Protection value must be 10% higher than this measured value. After the low current limit is adjusted, make sure that the pump has low current error by closing the suction valve during operation. • When the tests are completed, open the suction valve again to confirm that the pump works correctly.
htA SY	**NO WATER**	• Make sure that there is water in the tank. • Make sure that the float switch (floater) level is adjusted properly. • Make sure that the float switch works correctly by checking the float switch cable and terminal connections.
htA th	**OVERFLOW FAULT**	• This error is given when the "CS" parameter is "1", that is in the discharge mode, if the "SALTER (switch)" terminals are short-circuited. • Check the overflow float switch cable and terminal connections and make sure that it works properly. • Check whether there is overflow.
htA bL	**BLOCKAGE FAULT**	• The system is blocked because a low current error has occurred and the low current error continues even after software-defined automatic reset attempts. • Repeat the checks in the "htA dA" part. • Reset the error manually by holding down the Up / Down buttons and make sure that the system works correctly.

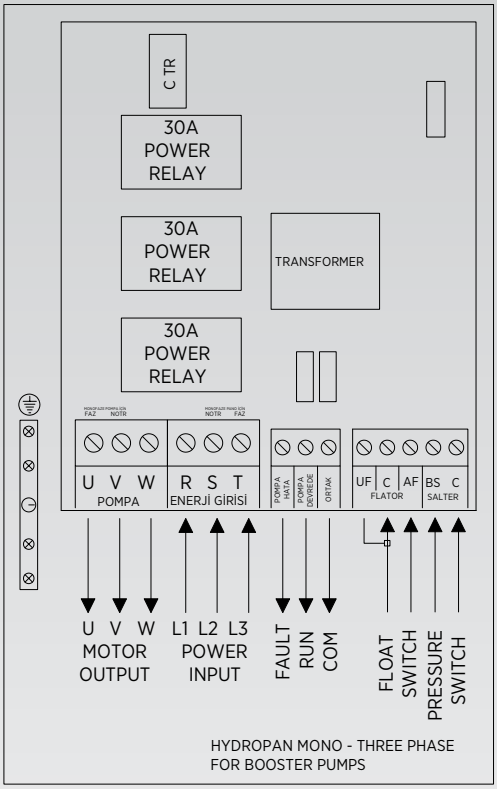

Figure 13. Three-Phase Booster System Connection Diagram

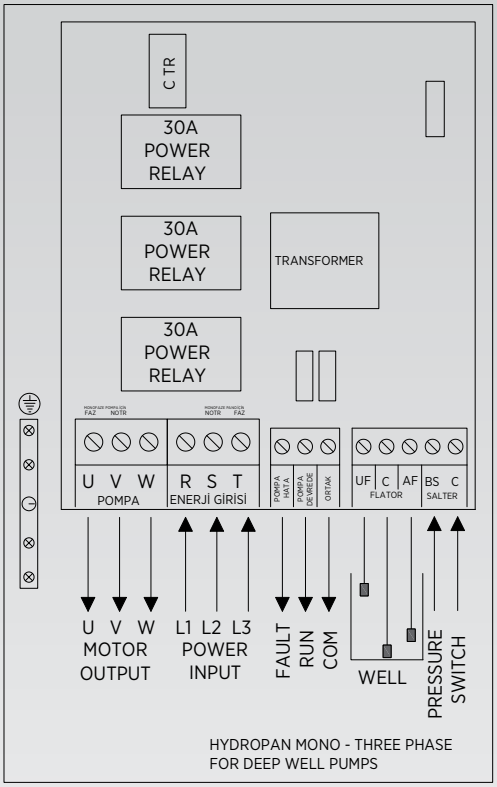

Figure 14. Three-Phase Deep Well System Connection Diagram

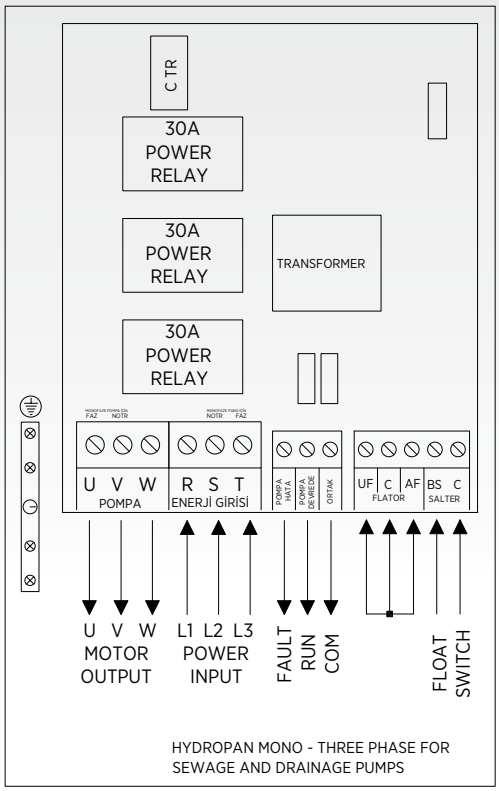

Figure 15. Three-Phase Drainage System Connection Diagram

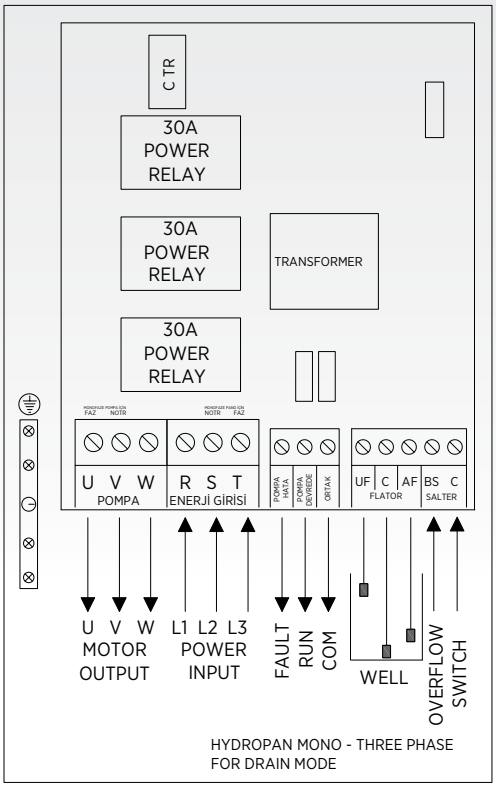

Figure 16. Three-Phase Discharge Mode Connection Diagram

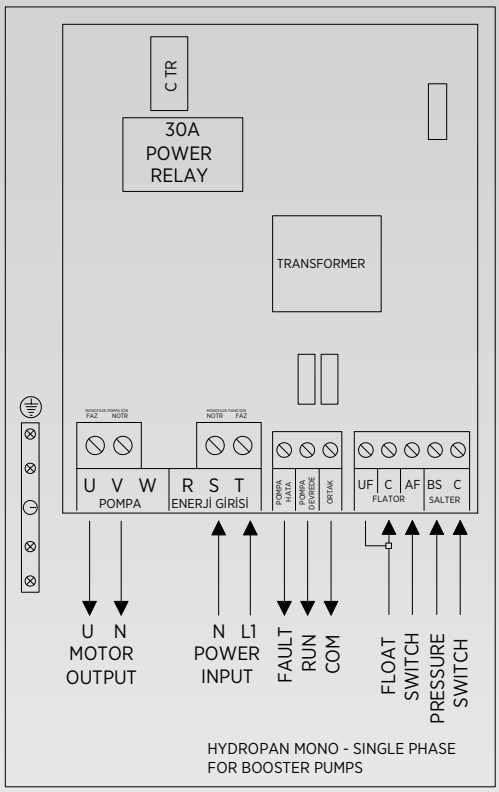

Figure 17. Single-Phase Booster System Connection Diagram

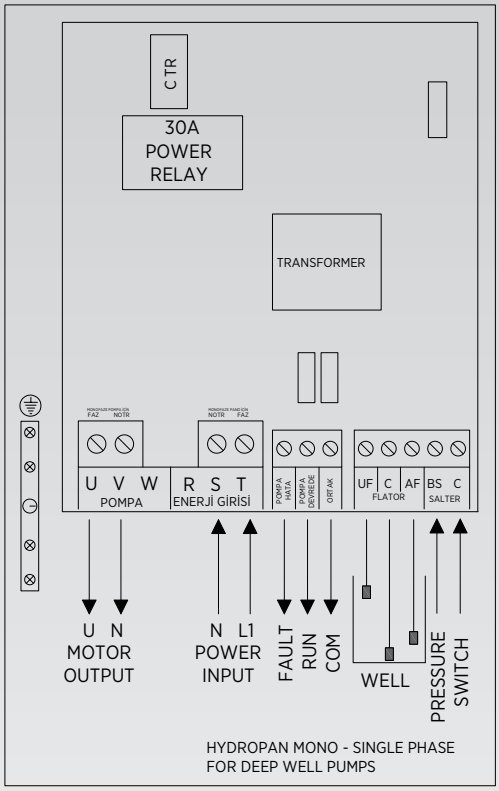

Figure 18. Single-Phase Deep Well System Connection Diagram

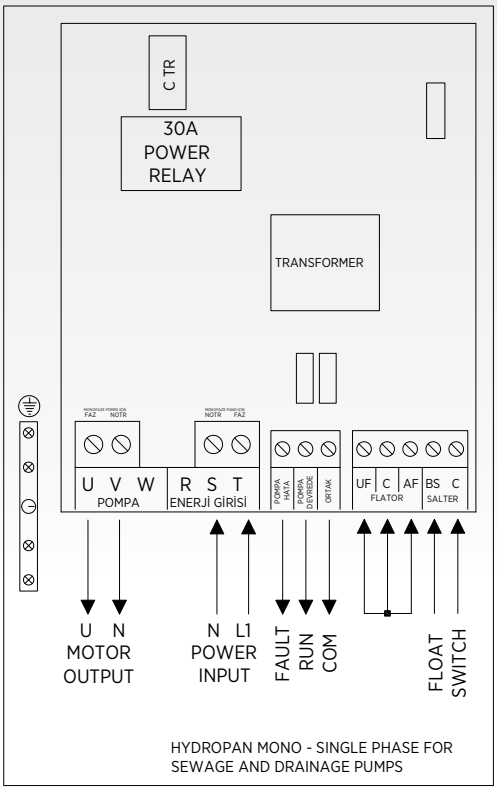

Figure 19. Single-Phase Drainage System Connection Diagram

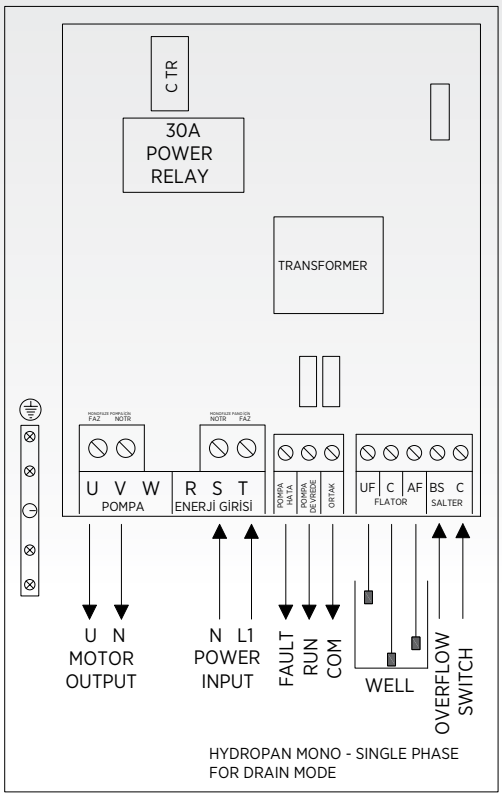

Figure 20. Single-Phase Discharge Mode Connection Diagram

NOTES

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Dudullu Organize Sanayi Bölgesi 2. Cadde No: 14
34775 Ümraniye İstanbul / Turkey
Tel : +90 216 561 47 74 (Pbx) • Fax : +90 216 561 47 50
www.etna.com.tr/en • info@etna.com.tr

ETNA®

0850 455 38 62
customer service