SUBMERSIBLE PUMP CONTROL RELAY (40A) MDK-24

General

MDK-24 submersible pump control relay is designed to protect pumps with sensitive operating voltage and current values from errors that may arise from mains voltage and overload.

Use and Working Principle of the Device

Make the connections of the device in accordance with the connection type. Otherwise, the device may be damaged. Adjust the current setting of the device according to the operating current values of the motor you will use. When the device is energized, the High Current Set Value is shown on the upper display and the Low Current Set Value is shown on the lower display for the first second. After one second, the phase-neutral voltage value is shown on the upper display and the current drawn from the network is shown on the lower display.

You can make overload setting (high current) with the A> knobe, low current setting with the A< knobe, and reset time setting with the t knobe. While making adjustments with the knobes, the adjusted value is seen on the upper display.

When the device is energized, if the well is full and the tank is empty, the relay is energized and the "OUT" LED turns on. When the device enters an error, the relay is de-energized, the "OUT" LED turns off and the relevant indicator starts flashing.

Reset Button: When the device enters an error, the Reset button must be pressed for 1 second to restart it. After the device is reset, the relay is energized and the OUT LED turns on.

- **In case of high voltage error;** If the voltage value is between 245V and 250V, the device allows manual reset.
- **In case of low voltage error;** If the voltage value is between 170V and 175V, the device allows manual reset.
- **In case of high current, demurrage and fuse failure;** If the current value is at least 0.5A lower than the high current set value, the device allows manual reset.

Required Settings:

A> : High Current Set Value can be adjusted with this knob.
A< : Low Current Set Value can be adjusted with this knob.
t : With this knobe, low current error reset time and upper electrode waiting time are set.
(The same time value is used for both parameters, this setting is in minutes.)

Error Notifications:

Upper display is flashing: This display flashes when the device enters a high or low voltage error.
Lower display is flashing: This display flashes when the device enters a high or low current error.
Well empty LED is on: There are no electrodes connected to the device or the electrodes do not touch the water, there is no water in the well.
Well empty LED is flashing: The device counts the upper electrode waiting time, there is water in the well.
Tank full LED is on: There is no float connected to the device or the float is open circuit, the tank is full.
OUT LED: This LED turns on when the relay is energized. The device is not in error.

Protection Functions

High Current Protection - To enter the error state: When the current drawn from the network exceeds the high current set value, the device waits for 5 seconds and then enters an error state. In case of error; The relay is de-energized, the lower display flashes and the "OUT" led turns off.

High Current Protection - Exiting the error state: If the current drawn from the network falls below the high current set value by at least 0.5A, the device exits the error state by pressing the reset button for 1 second. In normal operating condition; The relay is energized, the lower display is on steadily, the "OUT" led is on.

Low Current Protection - To enter the error state: When the current drawn from the network falls below the low current set value, the device waits for 5 seconds and then enters an error state. In case of error state; The relay is de-energized, the lower display flashes and the "OUT" led turns off.

Low Current Protection - Exiting the error state: When the waiting time set with the t knobe expires or the reset button is pressed for 1 second, the device exits the error state. In normal operating condition; The relay is energized, the lower display is on steadily, the "OUT" led is on.

High Voltage Protection - To enter the error state: When the voltage value exceeds 250V, the device waits for 3 seconds and then enters the error state In case of error state; The relay is de-energized, the upper display flashes and the "OUT" led turns off.

High Voltage Protection - Exiting the error state: The device automatically exits the error state 3 seconds after the voltage values falls below 245V. In normal operating condition; The relay is energized, the upper display is on steadily, the "OUT" led is on.

Low Voltage Protection - To enter the error state: When the voltage value falls below 170V, the device waits for 3 seconds and then enters the error state. In case of error state; The relay is de-energized, the upper display flashes and the "OUT" led turns off.

Low Voltage Protection - Exiting the error state: The device automatically exits the error state 3 seconds after the voltage values exceed 175V. In normal operating condition; The relay is energized, the upper display is on steadily, the "OUT" led is on.

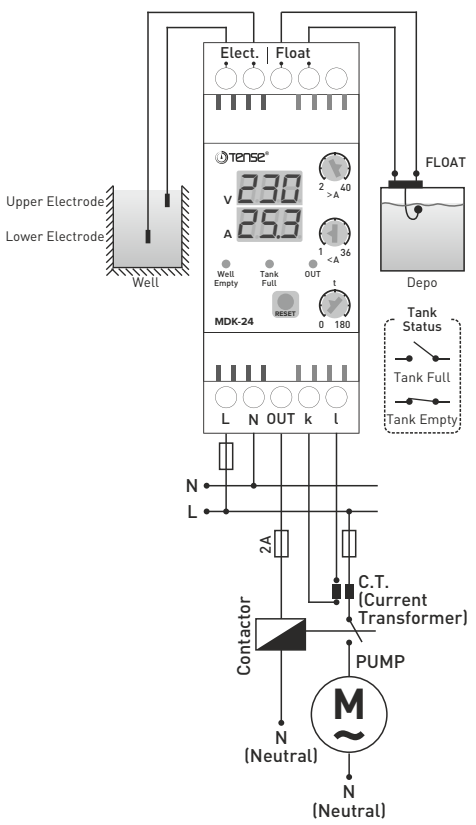
Fuse Protection - To enter the error state: When the current drawn from the network exceeds 2 times the high current set value, the device enters an error state without waiting. In case of error state; The relay is de-energized, the upper display flashes and the "OUT" led turns off.

Fuse Protection - Exiting the error state: If the current drawn from the network falls below the high current set value by at least 0.5A, the device exits the error state by pressing the reset button for 1 second. In normal operating condition; The relay is energized, the upper display is on steadily, the "OUT" led is on.

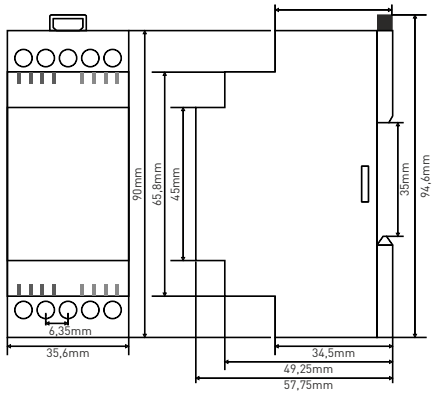
Demurrage Current: Each time the device energizes the relay, it allows a current draw of 2 times the set high current set value for the first 8 seconds. If the demurrage current is exceeded, the device goes into fuse protection error.

Upper Electrode Waiting Protection: After the device goes into error due to running out of water in the well, when the well starts to fill again and the water level reaches the upper electrode, the device waits for the time set with the t button, and the "Well Empty" LED flashes during this period. At the end of the time, the relay is energized, the "OUT" led turns on and the "Well Empty" led turns off. When the reset button is pressed for 1 second while the "Well Empty" LED is flashing, the device does not wait for the time and the relay is energized.

Connection Diagram



Dimensions



Technical Specifications

Operating Voltage(Un)	:	230V AC 50/60Hz.
Operating Frequency	:	50/60 Hz.
Operating Power	:	<4VA
Operating Temperature	:	-20°C.....+55°C
Display	:	2x3 digit display, 3x LEDs
High Current (Overload)	:	2A - 40A
Low Current	:	0A - 36A
Current Hysteresis	:	0.5A (Fixed)
Current Set. Increase	:	0.5A
Current Error Waiting	:	5sec. (Fixed)
Low Current Reset (t)	:	0min. - 180 min.
Upper Electrode Waiting (t)	:	0min. - 180 min.
t Knobe Set. Increase	:	5min.
High Voltage	:	250V (L-N)(Fixed)
Low Voltage	:	170V (L-N)(Fixed)
Voltage Hysteresis	:	5V (Fixed)
Voltage Error Waiting	:	3sec. (Fixed)
Voltage Error Reset	:	3sec. (Fixed)
Connection Type	:	Terminal connection
Contact	:	5A/250V AC (Resistive Load)
Cable Diamter	:	2.5mm²
Weight	:	<150gr.
Mounting	:	Assembled on the din rail.
Operating Altitude	:	<2000 meters

Document Number: DK-120-1

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