

# SEA FROST®

## DC 5000 Low Voltage Protection Relay

The DC 5000 uses a Macromatic relay to monitor the voltage at the compressor motor. The relay has an adjustable pick up voltage (reset). A red indicator lamp lights when the relay is on. This lamp turns green when the relay senses low voltage and turns off.

This relay is designed to protect the compressor motor from low voltage damage as well as protecting the batteries from deep discharge.

### How It Works

As an example, if the pick up voltage is set at 12.2 volts and the drop out voltage is set for 90 percent when the voltage drops 1.2 volts (10 percent of 12.2), the relay will turn off the compressor. This would be at about 11 volts. The drop out voltage setting is dependant upon the pickup voltage setting. The compressor will remain off until the pickup voltage is restored to or above 12.2 volts by recharging the batteries.

### About Battery Voltage

Battery voltage will drop as batteries are discharged. Resistance in the wiring and wire size creates a lower voltage at the consumer than at the batteries. Battery voltage will rise when the consumers are turned off. As a result of this spring back to at rest voltage levels the voltage relay must be set for your particular installation.

### Setting The Control

The control is mounted on the DC 5000 Electrical junction box. The relay has a two knobs and an indicator lamp.

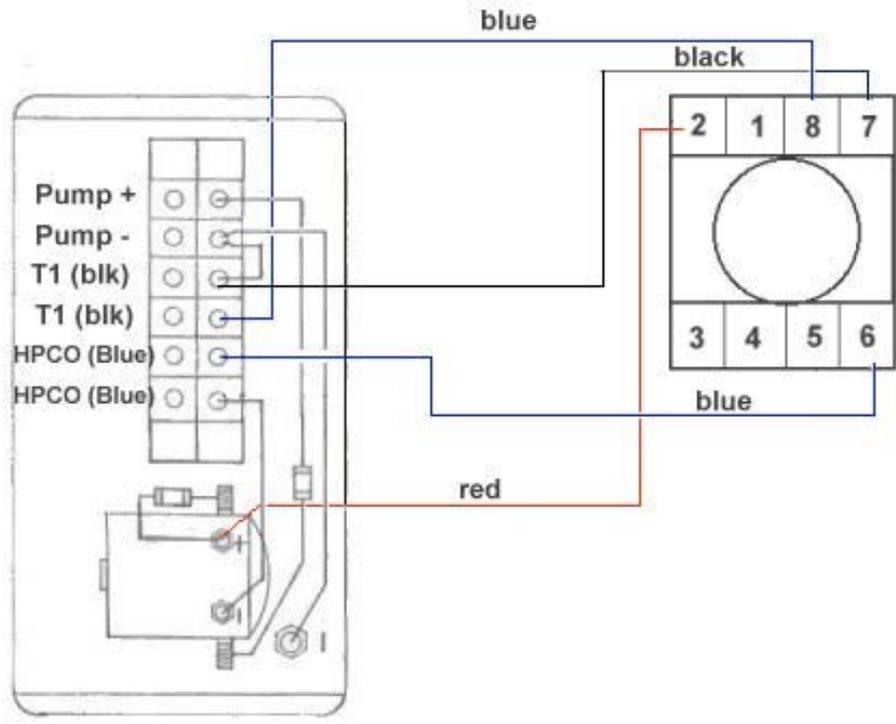
Initial setting: Set the pick up point at about 3 o'clock this should be about 12 volts. Set the drop out voltage at the 3 o'clock position as a starter. This should be about 90 percent of 12 volts or 10.8 volts. Use the 20-hour discharge rating of your battery bank and calculate 30% as a safe discharge level in amp/hours. When properly set the compressor drawing 40 amps per hour should be able to safely use this battery amount without the protection relay switching off.

Target: Set dropout voltage as high as possible (toward 95 percent) without dropping out when you know you have plenty of battery amp hours to go. Set pickup voltage at greater than 12 volts.

Mark and log setting positions.

Vmkp012d71806

 = 7 Amp Fuse



**DC 5000 WIRING  
WITH VOLTAGE MONITORING  
RELAY OPTION**

12/07/04