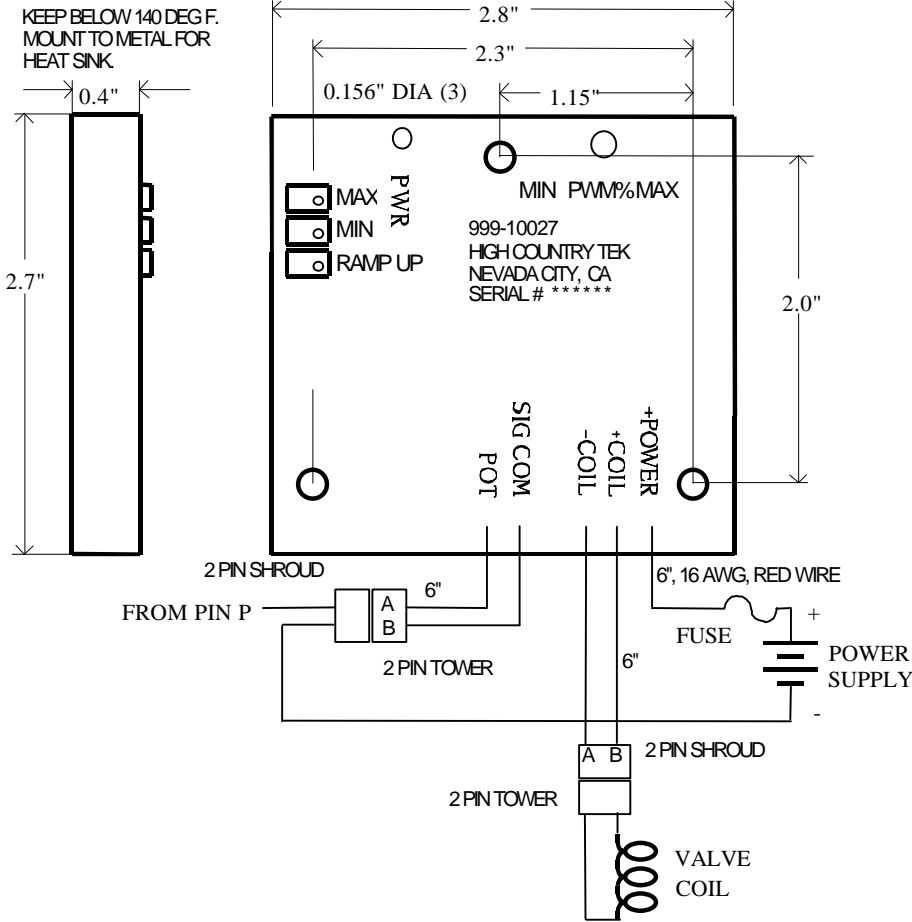




High Country Tek 999-10027 valve driver user's guide

Wiring and mounting diagram



Control input:

Voltage control input, 4.6 to 7.0 volts into a 50 ohms on the card.

Wiring:

Hook up unit per above diagram. Use 16 AWG wire for power and coil wiring. Use Weather Pak power and coil connectors. The fuse should be located as close to the power supply as possible. This will protect the wiring and the valve controller. Use **only** an AGC-5 fuse. Failure to use a fuse invalidates the warranty.

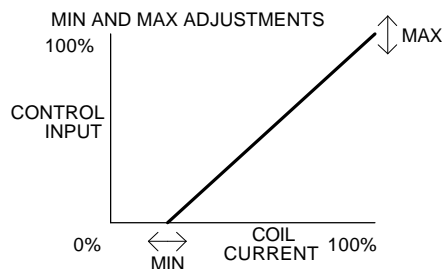
Set up procedure:

The unit is pre adjusted at the factory. The following procedure is for adjusting the unit if needs to be re adjusted. The unit is best adjusted by observing the system response. Coil current can also be used, but coil voltage is not accurate.

Always adjust the MIN or MAX pot until the response starts changing and then adjust to the desired response.

1. Turn the MAX, MIN and RAMP UP pots 10 turns CCW.
2. Turn on the power supply. The PWR light will come on if the power supply voltage is greater than 10.5 volts. The unit will not function correctly if the PWR light is off or blinking.

3. The PWM% light indicates the duty cycle of the voltage to the coil by going from pure red, always off, through pure green, always on. The ratio of red to green gives a relative indication of current flow through the coil as an aid to tuning and trouble shooting. In some systems, the maximum duty cycle required to drive the coil will result in a reddish or yellow light.



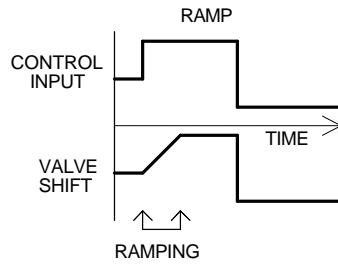
4. Set the control input to minimum, (4.5V) and adjust the MIN pot for the desired response, CW for more current. The MIN pot can eliminate the valve's deadband.
5. Adjust the MAX pot 10 turns CCW. Set the control input to its maximum, (6.6 V) and adjust the MAX pot for the desired maximum response, CW for more current. The MAX pot adjusts the maximum valve shift.

Do not adjust the unit for more current than is required to fully shift the valve; this reduces the useful range of the control input and may harm the coil.

6. The MIN and MAX pots interact and the system response may change as it warms up. Warm up



If the set up procedure does not achieve the desired results, double check the wiring and perform the following tests. Record the test results. Note: This unit regulates coil current not voltage. A coil must be hooked up when adjusting the unit. The load must be inductive, do not use a resistor.



the control input from minimum to maximum (or maximum to minimum) while observing the speed of response. Turning the ramp up pot CW will increase the ramp time. The ramp slows down the system's response to fast control input changes.

7. Set the RAMP UP pot to the desired value by quickly adjusting

Trouble shooting

If the set up procedure does not achieve the desired results, double check the wiring and perform the following tests. Record the test results. Note: This unit regulates coil current not voltage. A coil must be hooked up when adjusting the unit. The load must be inductive, do not use a resistor.

Tools required:

A battery operated multi meter and a small screw driver are required.

Check the power input:

The card will not function correctly unless the +POWER to PWR COM voltage is at least 11 V. If this voltage is more than 30 V the card may be damaged.

Check the control input you are using:

Pot input: Measure the wiper voltage between the POT and SIG COM terminals. The voltage should go from 4.6 to 7.0 V.

Verify the coil is not shorted:

If the +COIL to -COIL is shorted, the valve driver will shut down its output until the short is removed. Disconnect the wires going to the +COIL and -COIL terminals and measure the resistance between the wires. Verify it is correct for the coil being driven.

Check the card at full on and full off:

Temporarily disconnect all wires from the VOLT and CUR inputs. To test the card at full on, turn the MAX and MIN pots 10 turns CW and temporarily connect the VOLT and +POWER terminals. Measure the voltage from +COIL to -COIL and from +POWER to PWR COM. The voltage difference should be no more than one volt if the card is operating correctly. To check the card at full off, disconnect the POT terminal and turn the MAX pot 10 turns CW and the MIN pot 10 turns CCW. The +COIL to -COIL voltage should be zero.

If the valve won't fully shift:

If the card passes the "full on test" above, the problem is in the system. Measure the power supply voltage at the power supply or battery and the voltage across the coil's terminals. Compare these readings to the values taken at the card. If there is excessive voltage drop in any of those wires, they should be shortened or replaced by bigger wires. Bad frame ground connections can cause large voltage drops.

When the coil heats up in use, it increases its resistance. Most coils will still be able to draw sufficient current to fully shift the valve if their rated voltage is supplied to the card and the card causes less than one volt drop. When this is not the case, you must use a coil rated for less voltage or increase the power supply voltage.

If the valve shift is erratic:

Using control handles without the High Country Tek card will cause erratic behavior due to a known problem with the design. Change to a newer control handle with the High Country Tek card installed. Electrical interference on the control lines can also cause erratic behavior if it is strong enough. Try changing the routing of the control wires to see if the problem changes.

Power supply interference or brown outs can also cause erratic behavior. Test for this by running the card off it's own fully charged battery.