KENDRICK ASTRO INSTRUMENTS
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MICRO Controller Manual

- Operational Voltage Range: 11.5 to 18 vdc
- Low Voltage Cut-off: 11.5 volts
- Amperage: Fused at 7 amps (fuse in tip of cigarette lighter plug).Can be fused up to 10 amps
- Power settings: ON/OFF, 10% to 100% in 10% increments.

A Note About LED Brightness:
We have adjusted the LED brightness to be nearly invisible under normal lighting conditions. It is easily visible in the dark or dim evening light so when programing, it is highly recommended that you follow the procedure below in dim lighting conditions.

To power up:
- To turn the controller on, press and release the button. The LED will flash will flash once (which represents the factory default 10% power setting). There will be one second delay after the green flash and then the controller will begin to pulse red in an exact representation of the actual electrical flow through the controller.

To power down:
- Press and release the button. The LED will turn blue and then go off. When the LED is off, the controller is off.

To adjust power % setting:
NOTE: The controller must be turned on and allowed to go through its start up sequence before attempting to enter programing mode. If you do attempt to enter programing without actually booting up the controller first, the controller will stay off.
- Press and hold the button for three seconds. The LED will pulse blue three times. This indicates that you have entered programming mode.
- Continue to hold the button down. About one second after the blue pulses finish, the LED will begin pulsing orange. The pulses represent a 10% increase in power for each pulse. NOTE: Whenever you enter programing mode, the controller takes the power setting down to zero. Count the pulses and when you have reached your desired power setting, release the button. If you want a 50% power setting, count 5 orange pulses. The LED will stop flashing (go solid) when the 100% power setting has been reached. *If you want to enter a lower setting, you will have to exit and then re-enter programing mode.*
- After exiting programing mode, the LED will pulse green several times to represent the new power setting (ie: 5 times for 50% power), there will be a short delay and then the controller will pulse red to indicate that the power to the heaters is now on.

Protection Mode:
If your controller experiences a situation where you have a short somewhere in your heating system, the controller LED will briefly flash white and then turn off. If this ever happens, you will need to determine the cause of the short to prevent the controller from shutting down again.

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Low Voltage Cut-off:

- To protect your battery from being too deeply discharged, we have a low voltage cut-off function built into the controller. The LED will flash orange when the voltage is between 12 vdc and 11.5 vdc. This is a warning that voltage cut-off will occur soon. When the LED pulses green (every 6 seconds), it indicates that low voltage cut-off has been engaged and your controller has been turned off.
- When the proper voltage is re-established, the controller will flash white several times in accordance with the pre-programed power % setting but you will have to push the button once to turn the controller on.

Troubleshooting:

1. The LED will not light up:

- You may have a blown fuse. Inspect the fuse found in the tip of the cigarette lighter plug. It can be accessed by unscrewing the tip of the plug. If you have a blown fuse it indicates a problem somewhere else in your system and the source of that problem will need to be determined in order to prevent the fuse from being blown again.
- Power cord may be loose or disconnected. Inspect cord.
- Your battery or power supply may be completely dead and may need replacing.
- You may have short in one of the heaters and this is turning the controller off.

2. Heaters not warming up:

- Take heaters off the device being heated and run them at a 100% controller setting for a couple of minutes. If they still do not warm up, the heater/s may be defective.
- You may be using too low a setting for your heater and/or for your conditions. Adjust the setting on the controller to compensate.
- You may have short in one of the heaters and this is turning the controller off.

Warranty:

We have a limited one year parts and labour warranty. Misuse of any kind and tampering will void your warranty.

Other Notes:

Please only use a Kendrick power cord with this controller. Our power cords have the proper guage wiring for the amperage capability of this controller.

For the utmost in quality control and customer satisfaction, Kendrick tests 100% of our controllers and heaters before they leave the factory.

For an instructional video on how to use this controller, please visit the Kendrick Astro youtube channel.