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# RPM-14

## Radar Speed Monitors Operating Manual



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## *Thank you for your business!*

To Our Valued Customer,

K&K Systems, Inc. is excited that you have purchased our product.

Our company has been serving the traffic industry since 1997. Since that time we have risen to become a leader in the traffic industry. We offer a complete line of traffic safety products that include message boards, arrow boards, radar speed monitors, solar school zone flashers, solar 24-hour flashers and many other quality products that serve our industry today.

At K&K Systems, Inc., we strive to improve the quality of our products. We are dedicated to the concept that our customers are our most valuable resource. We strive to serve our customers as we would want to be served.



*Tim Keith*

President

K & K Systems, Inc.

# INTRODUCTION

## RPM-14 Radar Speed Monitor

This model has 14" two digit amber LED lighting display boards that detects speeds from 5-99 miles per hour. An optional KPH third board is available, if needed. The Radar unit can be solar powered with a charge controller. The optional speed limit is changeable with supplied numbers. It has battery backup power with the traffic stats option. The radar display board is installed in an aluminum housing with black front to stop glare and prevent rust. The LED radar display is rated for 100,000 hours.

### **Battery Box (if applicable)**

The battery box is steel fabricated with lockable rotary latches and hinged top, to protect batteries and controller.

### **Power Source**

Our products incorporate a battery pack wired for 12V operation, depending on the requirements of the design. The battery bank is regulated by and protected by a solid-state charge controller/low voltage disconnect. This prevents gassing and over discharging of the batteries, which can result in premature failure. A thermal compensation and related circuitry adjusts the charge rate of the system with variances in temperature.

# SAFETY/ WARNINGS/ PRECAUTIONS

The following are recommendations for the safe and responsible use of the K&K Systems units.

*Please remember that the best assurance against accidents is a careful and responsible operator.*

## **BATTERY SAFETY**

It is important that you know that, while 12 VDC is not likely to cause electrical shock, these batteries can produce unbelievable amounts of current that can instantly melt large tools, burn wires, and heat jewelry to skin searing temperatures. Batteries produce hydrogen gas in the course of normal operation and will explode under certain conditions with disfiguring consequences. One component of a battery, sulfuric acid, will permanently damage clothing, corrode metal, severely irritate your skin, and blind you if it gets into your eyes. You should become familiar with how batteries operate so that you will know how to avoid the dangerous characteristics of a battery.

## **BATTERY CHARGER SAFETY**

The battery charger is preset in automatic position. **DO NOT CHANGE THESE SETTINGS** because of possible overcharging of batteries. Plug cord into a standard 120 volt AC for charging.

## **SOLAR SAFETY**

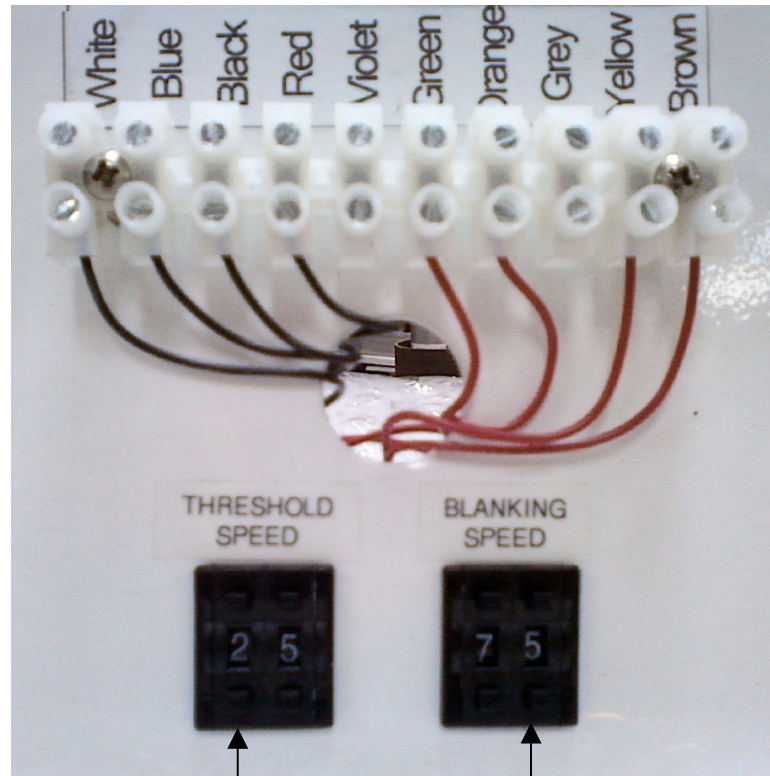
To reduce the risk of shock or burn during maintenance, solar panels should be covered with an opaque material and power converter/battery charger should be disconnected from AC power supply.

# LONG-TERM STORAGE

## LONG TERM STORAGE

When the sign is to be stored for extended periods of time, the POWER switch should be turned off, and the solar charge controller should be left on, allowing the solar panel array to continuously charge the sign battery bank. If possible, place the unit in a sunny area to allow the unit to maintain the charge on the batteries. When the sign is to begin operation again, a thorough inspection of all systems is advised before the sign is towed to the job site. Check battery state of charge to confirm over 12 volts.

# RADAR SETTINGS



Pushbutton to set Threshold Speed & Blanking Speed (top buttons decrease speed and bottom buttons increase speed)

Threshold speed is desired speed limit setting. Unit flashes when the speed limit is exceeded.

The Blanking speed is a speed setting also. However, the unit goes blank/blacks out when speed setting is surpassed. It prevents a driver from racing against the radar.

# MAINTENANCE

## **Battery**

The batteries hydrolyze some of the water in each cell in the normal course of operation. The rate at which water gets lost in this process increases with heavy usage. Depending on the usage of the sign, the water level of each 2V cell should be checked weekly or monthly. Use only distilled water to refill the cells, and be careful not to overfill. Refilling the cells of a battery will dilute the acid which causes it to act partly discharged. Water should be added before the batteries are put on the charger to ensure a full charge. Also, check all terminals for proper connection, tightness and corrosion. Check battery condition and charge when necessary or after storage. It is recommended that the batteries be charged every 3 to 6 months, regardless of weather conditions. Use an apron, gloves, and safety glasses when working on batteries.

## **Optional SolarPanels**

During operation, keep the module clean of excessive dirt and debris by using only soapy water and a soft cloth or sponge. Periodically check the integrity of wiring connections in the junction box. Inspect for signs of damage to module glass or frame.

# FREQUENTLY ASKED QUESTIONS

Please see FAQ's under specific model on website.



# TROUBLESHOOTING

## RADAR

- When the radar is first powered on the unit will boot up and the display should briefly show “23”. If it does not, check the following:
  1. Solar charge controller is “on”.
  2. There is output voltage at load terminals of solar charge controller and polarity of all connections is correct.
  3. Check battery voltage – low voltage will cause controller to shut off until battery is recharged.
  4. Open display door and verify radar, controller and display panels all have power indicator LED’s on.
  5. Check for broken or loose wires at connectors and terminal strips.
- If unit displayed “23” when first powered on, but does not display traffic speeds, check that “Blanking Speed” is not set too low before looking for broken or loose wires.
- The radar controller 6005 has three LEDs used for status, labeled D8, D9 and D10.
  1. D8 is the Processor Heartbeat LED, and will blink at a steady rate whenever the Processor is operating properly.
  2. D9 is the Radar LED and will flash whenever data is received from the radar sensor.
  3. D10 is the Lamp LED, and indicates when data is being sent to the LED boards.
  4. If any of these are not working properly, the radar controller may have to be sent back for repair.
- Troubleshooting tools needed:
  1. digital voltmeter
  2. Phillips head screwdriver
  3. straight screwdriver
  4. crescent wrench

Questions? Please email [service@k-ksystems.com](mailto:service@k-ksystems.com) or call 888-414-3003.

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## MANUFACTURER'S WARRANTY

1. The manufacturer warrants that all products manufactured by K & K Systems, Inc. will be free from defects in material and workmanship for a period of one (1) year from date of shipment, subject to the conditions and restrictions contained herein.
2. This warranty does not apply to a product that has not been installed or maintained in accordance with the manufacturer's instructions, has been subjected to damage in an accident, abused or neglected during operation, repaired or modified by persons other than manufacturer, its employees or authorized agents, or failed to have normal maintenance.
3. The buyer expressly agrees that the buyer's sole remedy and the manufacturer's sole responsibility, in respect to a warranty claim, is exclusively limited to repair or replacement at the manufacturer's option, of product or a portion thereof found by the manufacturer to be defective. The manufacturer is not responsible for labor or other expended charges by buyer including transportation charges, and shall not be liable for any incidental or consequential damages connected with repair of a product deemed to be defective or with installation or replacement of repaired product. Further, the manufacturer disclaims any liability for any incidental or consequential damages, including lost or duplicated time or expense accruing for any reason, to the owner or user of any products sold by the manufacturer, whether claim is made in contract or in tort or under any theory of warranty, negligence or otherwise.
4. The manufacturer reserves the right to make changes in its products from time to time, without incurring any obligation to incorporate such improvements in any products previously sold or in service.
5. The terms and conditions of the warranty cannot be altered without the written consent of the manufacturer.
6. The foregoing warranty is exclusive and in lieu of all other express, statutory and implied warranties **INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.** There are no warranties which extend beyond the language in the previous six (6) paragraphs.

If you have any further questions, please feel free to call us at our toll-free number of 888-414-3003, email [info@k-ksystems.com](mailto:info@k-ksystems.com) or look us up on the Internet at [www.k-ksystems.com](http://www.k-ksystems.com).

### **Disclaimer of Liability**

*We at K & K Systems have taken precautions to insure that the K&K Systems products are safe and reliable. However, we cannot be held responsible for any injuries or accidents as a result of the use or misuse of this product. It is the user's responsibility to insure that this product is used in a safe and responsible manner and to understand that he/ she is the only liable party. Any liability of K & K Systems is limited strictly to the Manufacturer's Warranty attached. K & K Systems, Inc., reserves the right to make any changes to this product, user guide or specifications without notice.*