Hotdog™

Temperature Monitoring/Alerting System for Interior of Canine Vehicles

Installation & Operation Manual

Congratulations! You have purchased the **Criminalistics, Inc., HOTDOG™** temperature monitoring system that has served K9 units worldwide for over 30 years.

Care and proper installation is very important for reliable operation.
K9 Officers & Installers please take time and read the instructions carefully.

I. Overview/Operational Summary

The Hotdog™ will alert you if the primary temperature sensor exceeds the programmed maximum temperature. The Hotdog™ control unit monitors the primary (silver tipped) sensor and updates the LCD of the sensed temperature once every 10 seconds. The backup temperature sensor is the black tipped sensor which is set to activate the alarm at a fixed 92^oF, +/-2%. The control unit will constantly display the sensed temperature of the primary sensor (even when off). In an alarm condition, the control unit will activate a horn/siren or lights and roll down 2 vehicle power windows (if connected). An alarm condition will occur if the programmed maximum temperature and/or the Back Up Sensor's temperature is exceeded.
Optional items are offered to enhance the methods of alerting you, these include a Pager System, Maxi Thin Fan™ System, En'Garde CO, & Smoke detection unit.

The Hotdog™ also incorporates a low voltage detection feature. If your vehicle battery voltage should decrease to approximately 10.8 volts, a smart IC detector will trigger the alarm sequence until the unit is shut off, battery voltage rises to above 11.0 volts or the battery loses all voltage.

Proper installation by qualified electronic technician is advised, this is a life saving device. <u>Instructions must be adhered to for the system to operate correctly</u>. Direct battery connection via the in-line fuse is required, do not alter this connection. Correct fuse size (30A) is required.

II. List of Contents:

- Hotdog control unit
- Ground wire, Black, 14awg
- Power wire, Red, 14awg
- Primary sensor (silver tip)
- Backup sensor (black tip)
- Window control zip wires (Clear & Blue)
- Accessory wire, Red, 16awg
- 2 mounting screws
- Extra 30A blade fuse

III. Installation

Please follow all instructions carefully.

1) Hotdog™ Control Unit

Find a convenient place to mount your Hotdog™ control unit. Typically units are mounted under the dash, between the driver and the canine area or on top of the canine cage. When determining the mounting position of the Hotdog™ control unit, consider the following:

- Accessibility of your Hotdog™ control unit to the driver.
- An area of the vehicle that is dry at all times.
- Hotdog control sensors must be kept away from any heat source; i.e. heat vents, floor, or sunlight!
- Do not install your Hotdog control unit under vehicle hood or in the trunk.

(considerations continued on the next page)

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- Do not install your Hotdog control unit next to **high wattage radio equipment**.
- Place Temperature Sensor wire near canine compartment but out of canine's reach.

Note: The primary and backup sensors must be handled with care. Do not pull or jerk on the sensor ends or cables. The backup Heat Sensor must be connected, if not connected to your Hotdog™ system the system will be in alarm mode constantly.
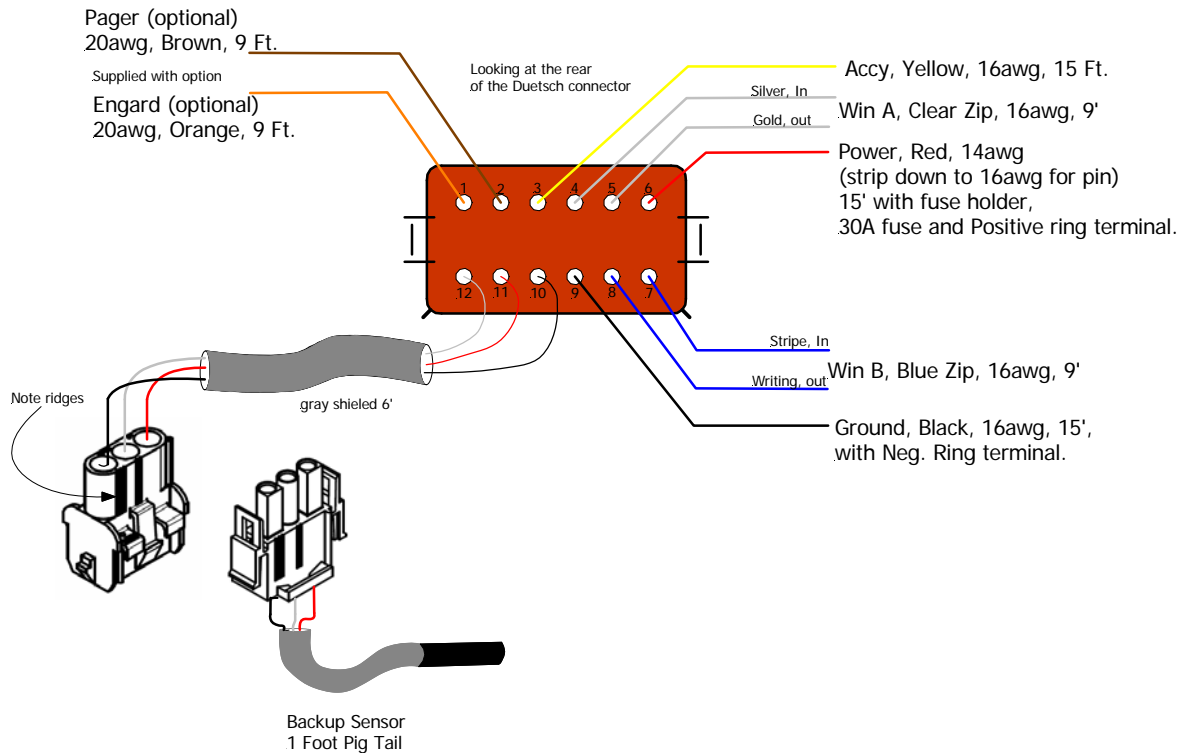
Terminal Strip Version

Rear View of Hotdog™ Control Unit
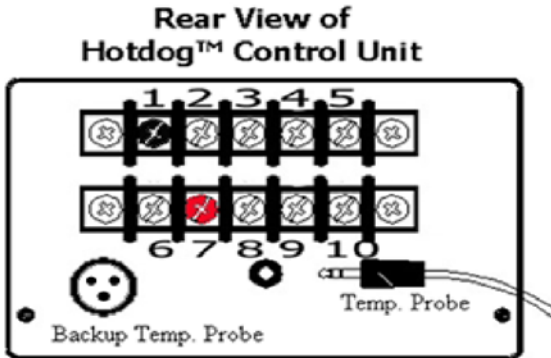
Temperature Sensors are detachable and both must be plugged in the unit for correct operation.

Description of the terminals on rear of unit:

Terminal #1	Ground for Hotdog™ system. Directly to vehicle battery ground.
Terminal #2	Currently not used
Terminal #3	Optional Pager use only. Negative trigger wire of pager system.
Terminal #4	Window input (A).
Terminal #5	Window output (A). 6 seconds 12V positive.
Terminal #6	Accessories, positive 12 Volt output (one second on, one second off) Connects to your selected alerting device: Lights, Siren, or Horn.
Terminal #7	12 volts in, powers the Hotdog™ system. Connects to vehicle battery via fuse link supplied Only. Do not connect otherwise.
Terminal #8	Window input (B).
Terminal #9	Window output (B). 6 seconds 12V positive.
Terminal #10	Optional En'garde input.

Duetsch Connector Version

Pager (optional) 20awg, Brown, 9 Ft.

Supplied with option

Engard (optional) 20awg, Orange, 9 Ft.

Looking at the rear of the Duetsch connector

Accy, Yellow, 16awg, 15 Ft.

Silver, In
Gold, out

Win A, Clear Zip, 16awg, 9'

Power, Red, 14awg (strip down to 16awg for pin) 15' with fuse holder, 30A fuse and Positive ring terminal.

Note ridges

gray shielded 6'

Stripe, In
Writing, out

Win B, Blue Zip, 16awg, 9'

Ground, Black, 16awg, 15', with Neg. Ring terminal.

Backup Sensor 1 Foot Pig Tail

Do not make connections to the vehicle battery until installation is complete.
Before completing the connection to the battery and inserting the fuse, make sure the unit is **OFF** by moving the right hand switch on the control box to the center position. Otherwise the unit will be in alarm mode for about 10 seconds due to the low voltage detector powering up. No damage will result.

## 2) Electric Window(s) (1-Clear and 1-Blue, two-conductor zip wire)

Window A uses terminals 4 & 5; Window B uses terminals 8 & 9. Use a Voltmeter at the electric window motor inside the door to locate which wire that has positive 12 volts when the window is rolling down. The wire on the electric window motor reverses polarity depending on the function. Check carefully that you select the wire that is positive during the window roll-down function. Cut this wire between the window motor and the window switch. Use the **Clear** zip wire for **Window A**, connect the **Silver** (Win A in) wire to the **switch side of the wire you just cut**, then connect the **Copper** (Win A out) wire to the **motor side** of the wire you just cut. Route the clear zip back to control center and connect the **Silver** to terminal **4** and the **Copper** to terminal **5**. Use the same connection procedure for the other door. For **Window B**, using the **Blue** zip wire marked with (Win B in) connected to the switch side and **Blue** zip wire marked (Win B out) to motor side respectively. (Win B in) to terminal **8** and (Win B out) to terminal **9**.

Note: Both windows are not required for installation, but will provide for maximum air flow.

Window Roll-down Connection Diagram

NOTE: The proper connection will allow the vehicle window switch system to function normally when Hotdog™ is not in the alarm mode. When Hotdog™ does activate and go into the alarm mode, 12 volts will appear at terminal #5 and then #9 for 6 seconds, **at the beginning of the alarm cycle**, thus rolling down the windows one at a time.
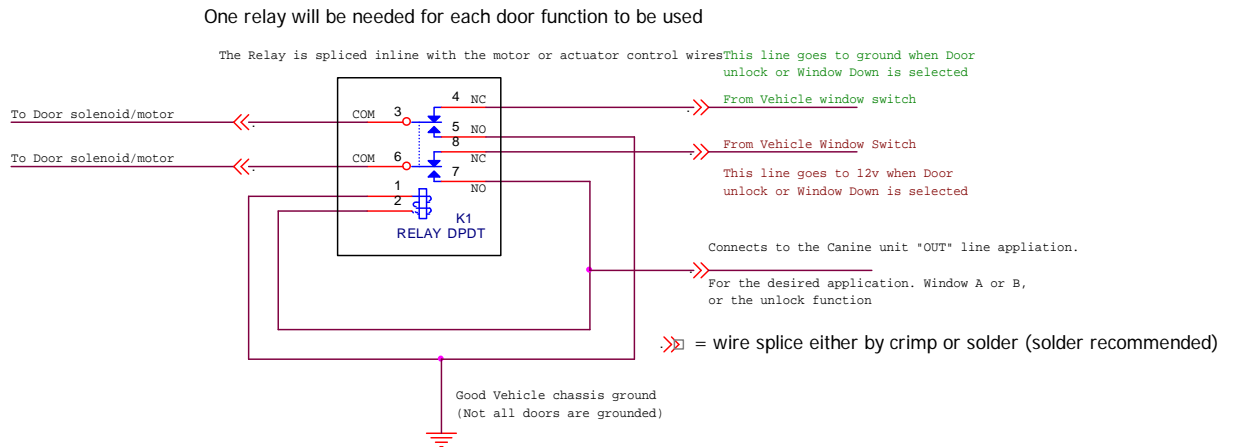**Wiring windows incorrectly can damage the Hotdog™ controller or vehicle wiring.**
Follow directions carefully and completely.
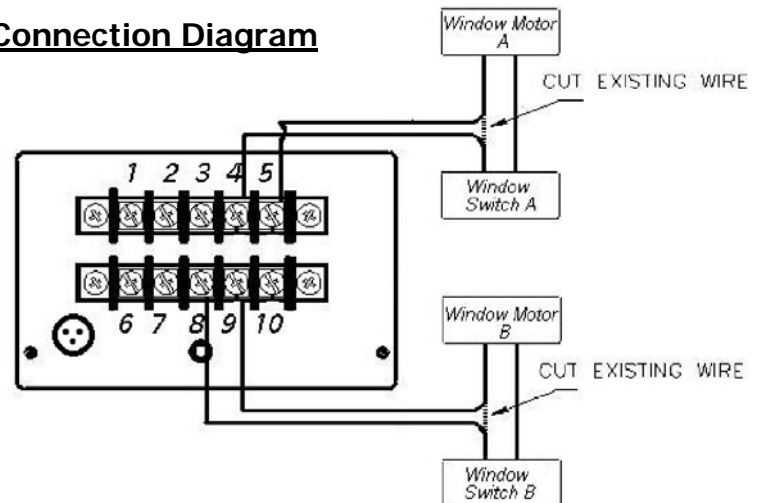
In vehicles manufactured after June of 2010, there have been instances of revised wiring by the vehicle manufactures for a 2 wire window motor system, where the two wires reverse polarity depending on the motor direction. With the door switch in the neutral position, there are no power signals (ground or 12v) applied to the motor. In this case, a buffer relay should be installed to roll the window down. Below is a schematic of the needed circuitry.

Criminalistics, Inc. assumes no liability for the correct application or installation of this circuitry.

This relay application can be used for any 12v 2 wire motor or actuator application.
The relay acts like a buffer between the canine system and the vehicle wiring.
Not all vehicles require it, but it can be applied to all vehicles.

One relay will be needed for each door function to be used

The Relay is spliced inline with the motor or actuator control wires This line goes to ground when Door unlock or Window Down is selected

To Door solenoid/motor — COM 3 — 4 NC — From Vehicle window switch
— 5 NO
To Door solenoid/motor — COM 6 — 8 — From Vehicle Window Switch
— 7 NC
— NO — This line goes to 12v when Door unlock or Window Down is selected
1
2 — K1 RELAY DPDT

Connects to the Canine unit "OUT" line appliation.

For the desired application. Window A or B, or the unlock function

>> = wire splice either by crimp or solder (solder recommended)

Good Vehicle chassis ground
(Not all doors are grounded)

Relay is 12v, DPDT,
Contact rating minimum 10A
(2) SPDT relay's can be used if desired.
(pin numbers on the schematic are for reference
not all relays use the same referenced numbers)

FOR EXAMPLE
Radio Shack 275-0217
Panasonic HL2-H-DC12V-F
Omron LY2-DC12
(pin numbering is different)

	Criminalistics, Inc. Morton Wa & Miami Fl		
Title	Door Lock/Window sup		
Size A	Document Number Rev A		Rev A
Date:	Wednesday, February 08, 2012	Sheet 1 of 1	SOM

3) Accessory (Red wire)

Locate the positive wire of the accessory you desire Hotdog™ to activate. Be sure that the accessory requires a positive voltage to activate and does not require over 20A (amps) for its operation. The easiest alerting device is the HORN. Solder into the wire that delivers +12 volts to the horn. Attach directly to the horn. Do not go through the horn relay, the horn relay normally requires a negative (ground) input. Solder and use heat shrink for the best connection. Connect the other end to Hotdog™ Terminal #6.

Horns with multiple positive wires: Use a voltmeter to determine which wire is delivering the highest voltage. Remove wire clip from the horn. Attach positive lead of voltmeter to wire. Touch negative lead of voltmeter to the vehicle's metal surface. Have someone blow the horn while you read the voltmeter. Do the same test to the other positive reading wire. Attach the Red accessory wire to whichever one of these wires that has the highest voltage. Route the opposite end to Hotdog™ Terminal #6.

NOTE: As shipped, your Hotdog™ control unit is capable of alerting with ONE DEVICE ONLY, one accessory. For instance, do not patch into both horn and lights. To activate more than one alerting device from Terminal #6 you must use independent relays, using Hotdog™ Terminal #6 to trip the relays. If you need help please call.

4) Pager (Option)

- Terminal #1 - Ground wire for Pager operation. May also be connected to the negative terminal of the vehicle battery or to a good chassis ground.
- Terminal #2 -Not used
- Terminal #3 - Negative Trigger wire to the Pager (refer to the pager instruction sheet). If the maximum temperature set point is exceeded the Hotdog™ will trigger the Pager, negative trigger input. The pager within 15 seconds will page the pocket beeper and continue to page until the alarm condition is corrected.
- Terminal #7 - 12 Volt power supply wire for Pager operation to Hotdog™.

Read the antenna setup information carefully. This is a quality tuned Antenna for the Pager, do not use the pager system without an antenna. Newer model vehicle's AM/FM antenna will not accept the Pager's transmission. Glass laminated antennas (in the windshield or rear window) will not accommodate the Pager's transmission. The pager operates on the citizens band. The pager includes a glass mount or through hole citizens band antenna, you may attach the pager to any tuned CB antenna.

Connection to the wrong antenna can damage your Pager and effect the Hotdog™ System Temperature display.

NOTE: A mismatched antenna on your Pager can cause your Hotdog™ to act erratically and pager can malfunction.

IV. Before You Begin

1) Display's AA Rechargeable nimh Battery

The function of this battery is to **retain** the **Maximum Set Temperature** while your system is disconnected from the vehicle battery or if the fuse is removed. This is the convenience and a safety feature many handlers have requested.

The rechargeable AA battery should last for many years and provide reliable service. If the unit is shelved for a period of 6 months or longer, we recommend replacing or recharging the AA battery before using the unit. The AA battery will "trickle" charge with normal operation. This is a very low rate charge. For faster operation it may be necessary to replace the AA battery.

To change the battery

Be prepared with a fresh, fully charged, good quality, rechargeable AA nimh or Li ion battery, 2 small tie wraps, and wire snips to cut existing tie wraps. Turn the unit off (right hand switch in centered position), then remove the 30 amp fuse located on the power supply wire next to vehicle battery positive post. Next, remove the two small screws at the bottom of the face of the unit. This will expose the inside of the display where the AA battery is inserted. Cut tie wraps and remove the old battery. Reinsert new tie wraps, insert the new battery, secure the tie wraps, not too tight but enough to hold the battery in place, cut off the excess tie wrap. Close the unit and tighten the screws. Put the 30 amp fuse back in the power wire. Now reset your maximum alarm point by following the instructions on how to program your system on page 7.
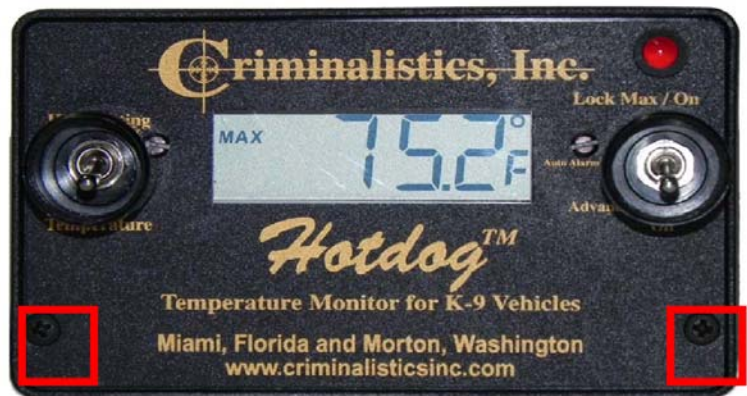
After changing the AA battery remember to reset your Maximum Alert Temperature.

After changing the AA battery remember to reset your Maximum Alert Temperature.

x

2) Garage Service

We highly recommend that before your K9 vehicle is put in for service (garage service) that you turn the K9 System off and remove the 30 amp fuse. This will help insure that no damage occurs while the vehicle is out of your control. Upon picking up your vehicle from the service department, reinsert the 30 amp fuse and turn the system on, allow it to run through an alert cycle, checking that all functions are still correct. We also highly recommend that you run this test daily upon entering your vehicle while it is still hot; turn the system on, allow it to cycle through the functions attached, then turn it off and cool the vehicle down. Turn the system back on when your vehicle's interior temperature has dropped below your programmed Maximum. You, your canine Partner, and Hotdog™ are ready for Duty!

3) Temperature Sensors

Your system has two sensors for sensing temperature.

The Primary sensor (Silver tipped sensor) controls the temperature displayed on the LCD front panel readout. The Backup sensor (Black tipped sensor) is a preset for alarm activation at 92F. It will automatically reset below 92F. There is no display for the Backup sensor.

You set the Maximum temperature you desire for the primary sensor. When that temperature is reached by the Primary sensor, it will start the alarm process. The sequence is accessory activation, Window A down (for 6 sec.'s) then Window B down (for 6 sec.'s). Accessory output will continue to output until the alarm condition is corrected.

The backup sensor is a totally different method of sensing temperature and will act independently of the Primary sensor. Do not set the sensors in direct sunlight; this can cause a false alarm.

Please read the instructions, keep a copy in your glove box.

Please note both sensors have different plugs and sockets so you cannot interchange the sensors. If the Primary Sensor is broken or eaten the other will still work! If the Secondary sensor (backup sensor) is unplugged, broken, or eaten the K9 system will continually alarm until you attend to it, plug it back in, or replace it.   For large K9_Squads, it is a good idea to have an extra set of sensors for the fleet group. Keep sensors out of K9 reach. If the K9 is in the rear of a large SUV, request a 12 or 24 foot sensor to place closer to the K9, but out of K9 access. Keep it simple, keep it smart, keep the K9 safe!

V. Front Switches and Programming Instructions

The following illustration shows the front face of the Hotdog™ control unit after programming.

High Setting	Up	Up	Temperature Alarm On
		Mid	Off
Ambient Temperature	Down	Down	Advance Temperature Maximum setting

Switches on the front of your Hotdog™ have multiple functions.

Left-hand (spring loaded) switch has two positions:
- Up position: is for programming the High Setting. Move Left hand momentary switch up and release, display numbers start flashing. This position is used during programming and displays maximum high setting.
- Down position: In this position the system displays the Ambient Temperature detected by the primary sensor. This is the interior temperature of the vehicle at the location of the primary sensor.

Right-hand switch has three 3 positions:
- Up, turns on the Alarm mode. Red LED must illuminate. (Red LED blinks in a Alarm condition)
- Center, turns off Temperature Alarm
- Down, Advances Maximum Temp. Set (refer to setting the maximum temperature alarm point below)

Programming your Hotdog™
Keep this Programming Guide with your unit

The maximum temperature measured by the Hotdog™ is 230° F. Your Maximum set point should be in the area of 80- 85°F, no higher, for your canine's safety. As shipped from Criminalistics, Inc. your system MAXIMUM is programmed at 85F. This setting should be verified before operating the vehicle.

If the word 'MAX" does not appear on the display, Primary Maximum temperature is not programmed.

Consider and observe the following when programming your Hotdog™ for the first time:
- What is the normal ambient temperature of your patrol vehicle running with air conditioner on?
- Note the ambient temperature reading on the Hotdog™ during normal patrol or operating hours.
- Note the temperature when you return to your vehicle after it has been idling with the K9 inside. You will notice that the idling vehicle's interior temperature rises because idling vehicles generates more heat than when moving.
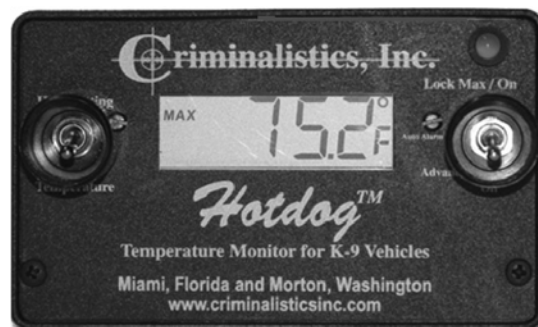
After the mentioned observations, consider programming the maximum about 5 to 7 degrees higher than the normal temperature reading during idling, assuming your air conditioner is cooling well. This will assist in setting a reasonable maximum temperature. Do not allow K9 to over heat. Set a reasonable maximum temperature, severe heat can cause brain and organ damage.

Maximum Alarm Setting (momentary)	Up		Up	Temperature Alarm On
Ambient Temperature	Down		Mid	Off
			Down	Advance Maximum Temp. Set

Set the MAXIMUM temperature:

1) Both switches are used in setting Maximum program temperature.
2) Move right hand switch to middle position. Right hand switch has 3 positions.
3) Move left hand switch to the up position. The switch is a momentary spring loaded switch; the maximum alarm digital temperature will be displayed and will be blinking. The unit is ready to reset Maximum alarm point. *Note: previously set maximum temperature may not be cleared, only reset.*
4) Move right hand switch to down position. Numbers in display will start advancing.
   Number will climb to the highest point and start over in the low teen temperature numbers.
5) When temperature nears your desired set MAX, move the right hand switch to middle. You can increment the displayed temperature by one degree at a time by moving the right hand switch down and back to middle position.
6) When the display temperature is set at your desired Maximum alarm point, lock in programmed maximum by moving Left hand switch up once (spring loaded). The abbreviation MAX must appear in the display if temperature is programmed correctly. If MAX does not appear in display and it is still blinking, move LEFT hand switch up once again.
   Digital display must stop blinking and the word MAX must appear in display.
7) Once the display reads MAX, double check the degrees you selected; area of 80-85 degrees Maximum, move Right hand switch to middle position, move left hand switch up once, and digital display begins blinking Maximum alarm point. Move Left hand switch back up once, allowing it to return to down position (spring loaded switch). At this point if you programmed correctly, the digital display is not blinking and the word MAX is shown. The temperature displayed will read the area (ambient) temperature sensed by the primary sensor.
8) When the right hand switch is in the up position (Alarm on), Red LED is on, display is ambient temperature. The word MAX is displayed on the LCD, denoting system is programmed.

The "MAX" (lettering) must appear in the LCD. If not, the Hotdog™ will not alert at your desired maximum. However, the backup sensor will activate above 92 degrees Fahrenheit (+/- 2%). If "MAX" disappears from the display, your programmed maximum temperature is lost. **The maximum alarm point must be reprogrammed.**

<u>**Quick tips:**</u>

1 - Forgot what your programmed maximum alarm point is?
     Move left hand switch up once, display will blink programmed Maximum alarm point. Move Left hand switch back up once to return to the ambient temperature. (LCD should not be blinking)

2 - Missed the temperature reading you desired? (LCD blinking, scrolled past desired temperature)
     Move right hand switch down, allow the numbers on the temperature display to go around again, the display will go up to the maximum of 230 and down to teen numbers. When display nears your desired maximum, increment the displayed temperature by one degree at a time by moving the right hand switch down and back to middle position. Once the desired temperature is displayed, lift the left hand switch up once and it will spring back down, the word MAX will appear in the display. The display will stop flashing. To TURN ON Hotdog™ System for daily use, move Right hand switch to the full up position, red LED is on, Hotdog™ is on.

> **Note**: If the unit has engaged with a temperature above 92° F the backup sensor located in the black tipped sensor must be cooled below 92° F before it will reset. Failure to do so will result in the unit alerting continuously until it is reset.

To disarm or turn off the Hotdog™: Toggle the Right-hand switch to the middle position.

Testing the Hotdog™ system: You should be able to activate the system with the heat from the palm of your hand. Hold the Primary sensor in your hand and watch the temperature climb. When the temperature reaches your maximum alarm point programmed temperature, your Hotdog™ system will activate (You can manually deactivate the system by toggling the Right-hand switch to the middle (off) position.

VI. Normal Operation

When the temperature inside your vehicle has either reached your programmed maximum alarm point temperature setting or the Back-Up temperature of 92 degrees is exceeded, your Hotdog™ will alert as follows: Terminal # 6 Accessory will pulse positive 1 second on and off. If you have the Optional Pager, it will also be activated by Terminal #3 every second. These two functions will continue to alert for the duration of the alarm condition until it is corrected, until the unit is switched off, or the vehicle battery depleted. The windows will activate at the beginning of the alarm cycle. First window **A** will activate out of terminal # 5 for 6 seconds providing a positive to the window motor, pause for 1/2 second, then window **B** by terminal # 9 will go positive for 6 seconds. The window signals only appear at the beginning of the alarm cycle, it will not happen again. Reset occurs if the temperature returns to below Maximum Temperature Set point.

Limited Warranty

Criminalistics, Inc. warrants your Hotdog™ control unit to be free from defects in materials and workmanship for a period described on the warranty page (page 10), to the original purchaser. Criminalistics, Inc. will repair this product, free of charge, when product is returned, at customer expense, to Criminalistics, Inc. and if, in the judgment of our staff, said product has proven to be defective within the warranty period. This warranty does not cover any expenses incurred in the removal and reinstallation of this product.

This warranty does not apply to any product damaged by improper installation, accident, misuse, abuse, improper line voltage, fire, flood, lightning or other acts of God, or if the product was altered or repaired by anyone other than **Criminalistics, Inc.**

NOTE: Failure to return the included warranty registration form (page 11) or follow the installation guide, drilling into, opening the control unit, removal of any screws, improper mounting of the solenoid, or abusive use of the Hotdog™ control unit voids the warranty.

Criminalistics, Inc. shall have no liability for any death, personal and/or bodily injury, and/or damage to property or other loss whether direct, indirect, incidental, consequential, or otherwise, based on a claim that the product malfunctioned. However, if we are held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, our maximum liability shall not in any case exceed the purchase price of the product.

Thank you for purchasing Criminalistics, Inc. Products

Trouble Shooting Guide

Problem	Possible Causes
Display is jumpy, reads erratically	Control unit is too close to a VHF transmitter. Improper grounding. Check the ground wire. Ground control unit with installed mending braces
Programming set point changes or MAX disappears from display.	Battery has lost power or is disconnected. Replace the AA rechargeable battery. Loose connection to the battery may be a reason.
Alarm does not sound	Unit is not turned on. Alarm point is too high. Verify alarm point, reprogram using instructions. If "MAX" is on the LCD, the red LED is flashing and your horn, lights or other alerting device is not activating, there is a connection issue to the device. Check for a pulsing 12v on terminal 6 (T6).
Temperature unit display is locked up. Stuck on one temperature or will not program to desired setting.	Turn the unit off, remove the 30A fuse and AA diasplay battery. Wait about 30 seconds, Replace the fuse, reinstall the AA battery and reset the alarm point of system.
Alarm remains on	The Back up sensor may have activated. If temperature has exceeded 92°F, cool Backup sensor down below 92°F to reset Backup sensor may be defective. replace Check vehicle battery voltage. Low Voltage Circuit may be alerting. (10.8v activation point) Alarm point may be improperly programmed. Refer to programming instructions and set at a temperature above normal ambient temperature. If a Optional En'Garde is installed, reset the En'Garde.
Front panel red LED wont turn on	Verify 12v is present on terminal 7 (T7) and unit is grounded at terminal 1 (T1), right hand switch must be up.
Temperature unit display is LLL	The silver tipped primary sensor wire may be partially inserted, disconnected, or broken. Replace primary probe
Temperature unit display is HHH	The primary sensor may be defective, replace. Temperature unit may be locked up, see above. Temperature unit may be defective, return unit for servicing.
No reading on display at all	Replace the temperature unit AA battery. (page 5)
Fuse is blown or blows upon alerting.	Check that terminals #5, 6 and 9 are not shorted to ground.
Unit is in alarm mode before reaching The programmed alarm point.	Back up sensor may have engaged unit. Cool back up sensor to below 92° F. Low Voltage Circuit may be alerting because of low vehicle battery voltage. (10.8v)

Please contact us if you have any questions. We are here to assist you.