

Chilly Dog™

Version 2007.08

K-9 SAFETY, VEHICLE CLIMATE CONTROLLER
INSTALLER'S GUIDE w/OPERATING INSTRUCTIONS

Patented Technology
By IC CUBED™

Read This Manual Completely
Before Beginning Installation!

LIMITED WARRANTY

IC Cubed warrants that all IC Cubed products are free from defects in workmanship and materials from the factory. IC Cubed will repair or replace any part or parts that IC Cubed has examined and that IC Cubed is satisfied were originally defective. Defective parts must be returned to IC Cubed accompanied by a copy of the corresponding IC Cubed invoice with transportation charges prepaid within one year of the date of purchase.

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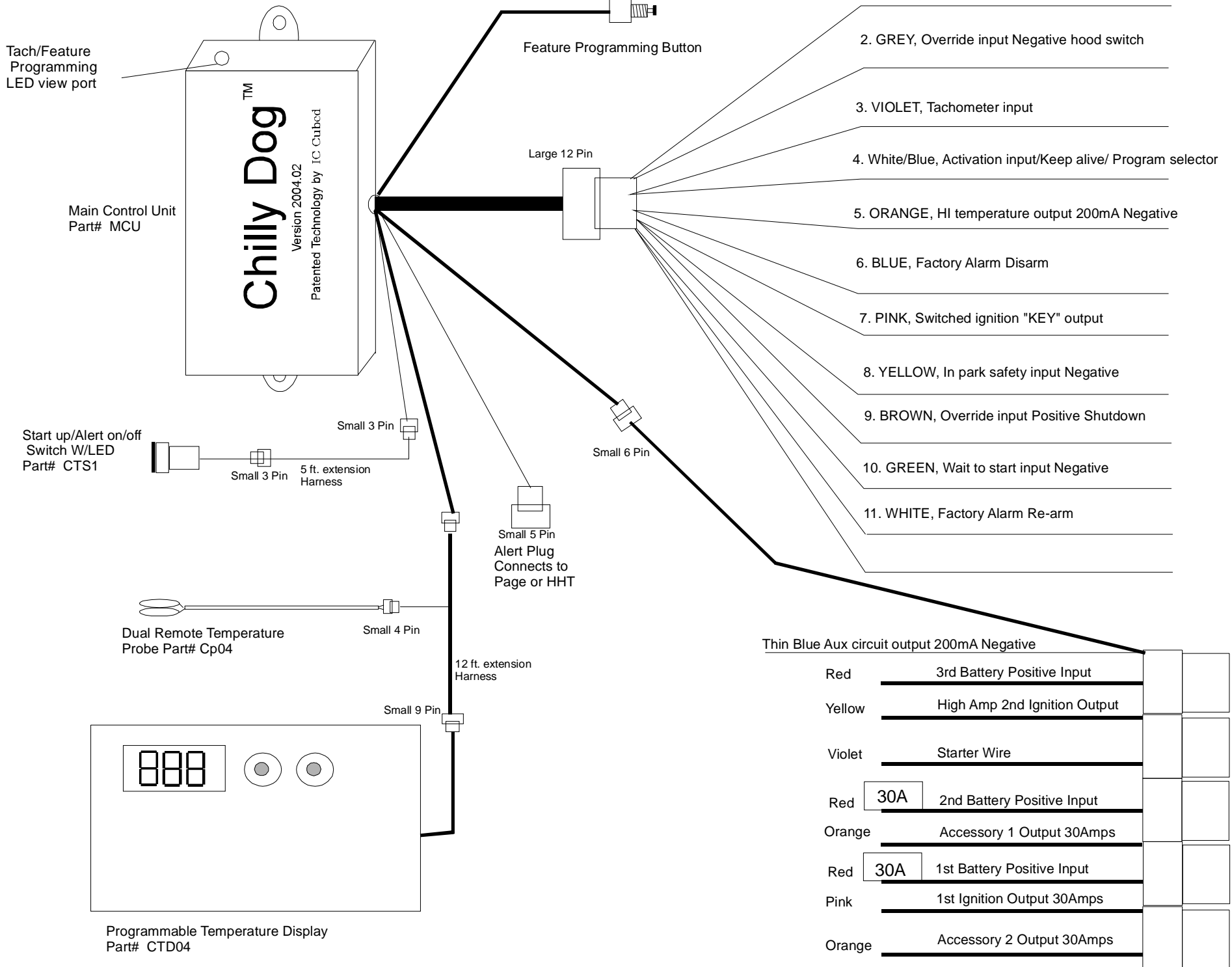


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The Chilly Dog Kit comes with the following;

Main Control Unit (MCU)

Programmable Temperature Display (CTD) w/mounting hardware

12 ft Extension Cable for CTD

Remote temperature Probe w/12ft of cable(CP04)

Primary Wire Harness (HKC1)

Ignition Switch Relay Harness (HKC2)

Safety Contact Reed Switch (SFT)

Mercury Tilt Hood Switch (HSW)

Start-up/Alert On/Off Switch (CTS) & Harness

Installer's guide w/Operating Instructions

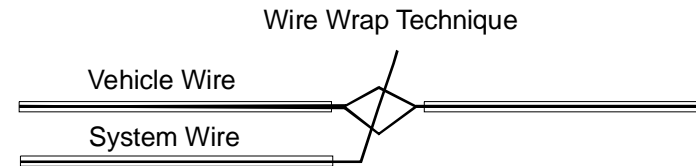
This system comes with the hardware necessary to work properly in a fuel injected gas or diesel powered vehicle.

You can call us toll free at 877-422-8233 (877-IC-CUBED).

Information can also be found at our web site at

www.iccubed.net

When connecting system wires to vehicle wires it is recommended that you use the wire wrap technique.



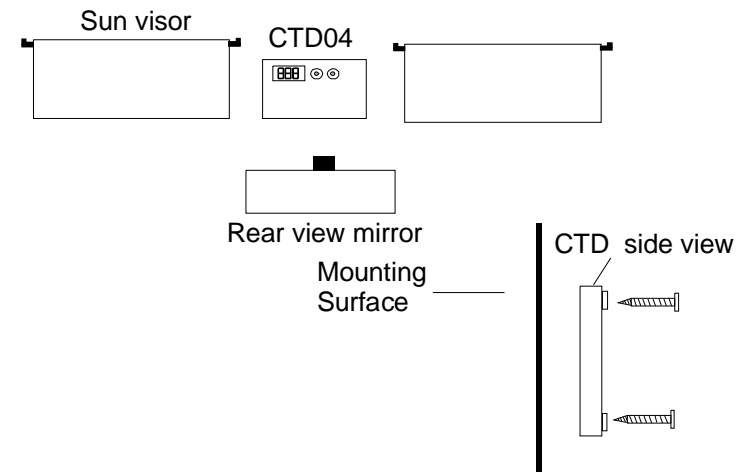
Strip away 1" of the insulation on the vehicle wire. Evenly part the strands of the vehicle wire. Strip away 1.5" of insulation at the end of the system wire. Thread the uninsulated portion of the system wire between the parted strand of the vehicle wire. Wrap the threaded uninsulated system wire around the uninsulated vehicle wire. Wrap electrical tape to cover the uninsulated system and vehicle wire connection.

Installing the Main Control Unit (MCU)

Find an accessible location inside the vehicle cabin to mount the MCU keeping in mind how you will run the cables for the ignition harness and for the programmable temperature display (CTD). Planning your installation will ultimately save time and help to avoid service returns in the future.

Installing the Programmable Temperature Display (CTD04)

If you are not using a remote temp probe (RTP) in your install, you will need to locate the CTD in an area that is not directly in front of an air conditioner vent, or that is not exposed to direct sun light as either of these positions will cause the on board sensor probe to cool off or heat up inaccurately. Typically you can locate the CTD on the headliner above the rear view mirror. This gives good coverage and also makes it accessible for the driver for activating and programming of the system.



Installing the Remote Temperature Probe (Cp04)

You must however, take care not to locate the RP03 in front of a vent or in direct sunlight as this will cause the system to have an inaccurate temperature reading.



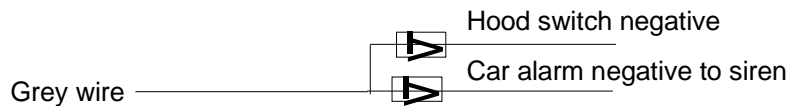
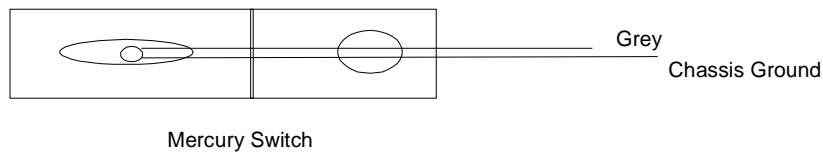
Wire Connections Explained

1. BLACK, Chassis Ground

Connect this wire to a good source of chassis ground. It is preferred to use a factory ground bolt as opposed to an aftermarket screw.

2. GREY, Override input Negative hood switch

Connect this wire to the provided mercury switch to prevent accidental start-up while the vehicle is being serviced. The system will not go into activation mode while this wire has a ground input. It can also be used to override the system from a car alarm's negative siren output in case of forced entry or attempted theft. Use diodes if connected to more than the hood switch.

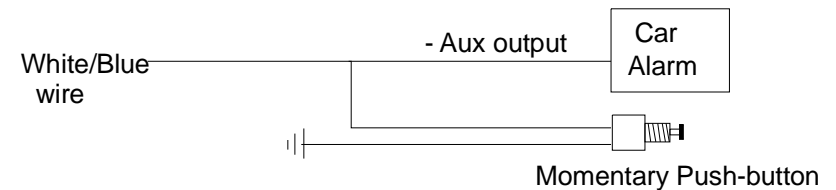


3. VIOLET, Tachometer input

Connect this wire to a tachometer signal for engine RPMs. The tach feed can be found at either the negative side of the coil, the back of a tach gauge, or at the engine computer module. Use a multi-meter to test for the tach wire as a test light will most likely result in damage to the vehicle. The tach wire will typically read between 1V and 6V AC.

4. White/Blue, Activation input/Keep alive/ Program selector

A pulse negative input at this wire performs multiple functions that are dependant on the systems corresponding mode:
 In Standby or Ready mode a negative pulse will cause the system to enter activation mode.
 In Activation mode a negative pulse will cause the system to exit Activation mode and return to either Standby or Ready mode depending on the status of the CTD On/Off switch.
 The KEEP ALIVE function allows the driver to enter the system into Activation mode if the vehicle's engine is running via the ignition key. This can be achieved by applying a negative pulse to this wire, wait 2 seconds, then switch off the ignition key. NOTE, if either override input has a signal i.e., break is pressed or hood is open, the Keep Alive function will not work.
 In Feature Programming mode a negative pulse will act as a selector for the settings of a particular feature. See Feature Programming for details.



5. ORANGE, HI temperature output 200mA Negative

This wire will supply a 200mA negative output while the cabin temperature is at or above the HI temperature threshold setting. It can be connected to the trigger wire of the optional horn honk, pager, window roll-down module, or any negative triggered alerting device.

6. BLUE, Factory Alarm Disarm Pulse

This wire supplies a momentary 200mA negative output at the beginning of Activation mode.

7. PINK, Key Switched ignition output

This wire supplies a positive ignition output when the vehicle's ignition key is switched to the run position. It can replace the ignition/accessory input to a car alarm so the car alarm ignition sense will not trigger and sound the alarm when the system automatically starts the vehicle. It can also be used via an RLA to control access to weapons release or trunk pop button.

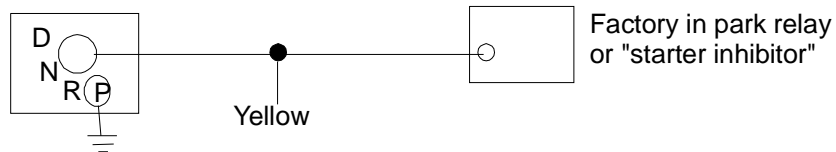
8. YELLOW, In park safety input Negative

Connect this wire to a circuit that provides a negative signal when the vehicle is in park. This can be done by connecting to a factory park safety circuit or by using the provided SFT contact set. This wire must be connected for the system to work properly.

Connecting to a Factory Park Safety Circuit

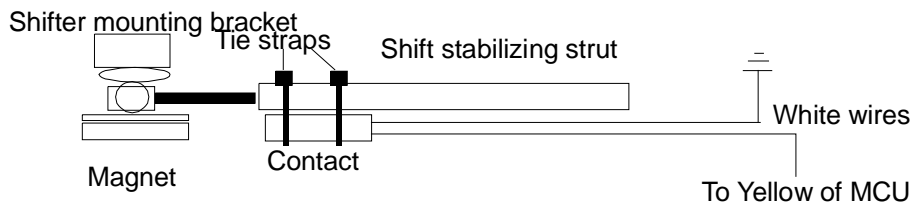
Determine if the vehicle is factory equipped with an "in park" output. To work properly it must supply a 12 volt negative signal with a 500mA headroom capacity. This means that in addition to the load of the circuits it is designed to supply this signal must be capable of supporting an additional 500mA.

NOTE, if you are uncertain about the capacity or functionality of a factory "in park" circuit DO NOT TIE INTO IT. On many newer vehicles the side effects will not be realized right away and can cause undesired operation. It is wiser and easier to use the park safety contact set that is supplied in the kit then to track down problems later!



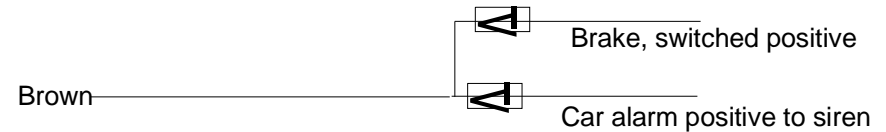
Installing the SFT contact set

Under the driver's side dash, or at the steering column, find the automatic transmission shift mechanism or strut. Find a mounting location in the park position in which the safety contact and magnet can be located 1/4in apart, tip to tip. Remove the cover to expose the adhesive backing on the magnet & stick in place. Use silicon or epoxy glue to form a permanent hold and let it set until tacked. Use tie straps to attach the contact to the shift stabilizing strut. With a multi-meter attached to the white wires of the contact, you should read a closed circuit when the vehicle is in park. If your meter does not read a closed circuit, gradually move the contact closer to the magnet unit you have a closed circuit. Now move the transmission from the park to the reverse position, the meter should now show an open circuit. If the circuit is still closed, gradually move the contact away from the magnet until the circuit show open. If you have made this adjustment test again that the circuit shows closed when in park. Once properly aligned you can permanently fix the contact in place with silicone or epoxy glue. Connect one of the white contact wires to chassis ground.



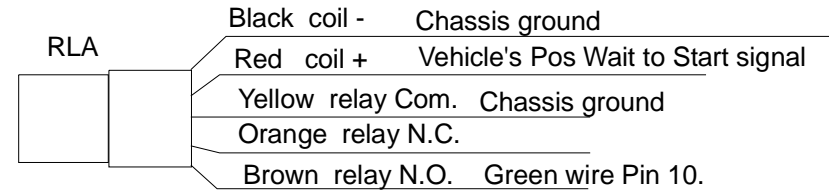
9. BROWN, Override input Positive Shutdown

A positive input at this wire will shutdown the automatic mode of the system. You can connect this wire to vehicle wire that shows a positive output when the brake pedal is pressed. The system will not go into activation mode while this wire has a positive input. It can also be used to override the system from a car alarm's positive siren output in case of forced entry or attempted theft. Use diodes to isolate multiple input connections.



10. GREEN, Wait to start input Negative

For diesel vehicles connect this wire to the negative Wait to Start indicator input. If the Wait to Start indicator has a positive input then use a relay to convert polarity.

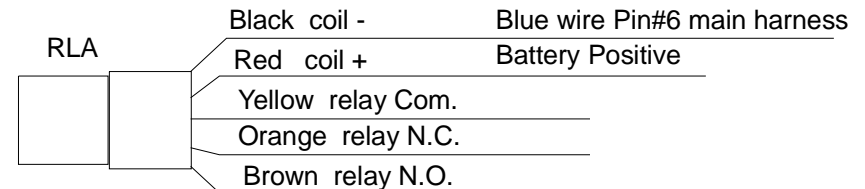


11. WHITE/BLACK, Factory Alarm Re-arm Pulse

This wire supplies a momentary 200mA negative output at the end of Activation mode.

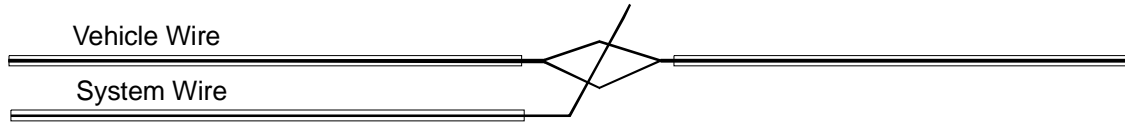
12. WHITE, Aux circuit output 200mA Negative

This wire supplies a 200mA negative output while the system is in Activation mode. It can be used to bypass anti-theft devices and can energize a 555 bypass module and 2 RLA relays to operate addition ignition circuits.



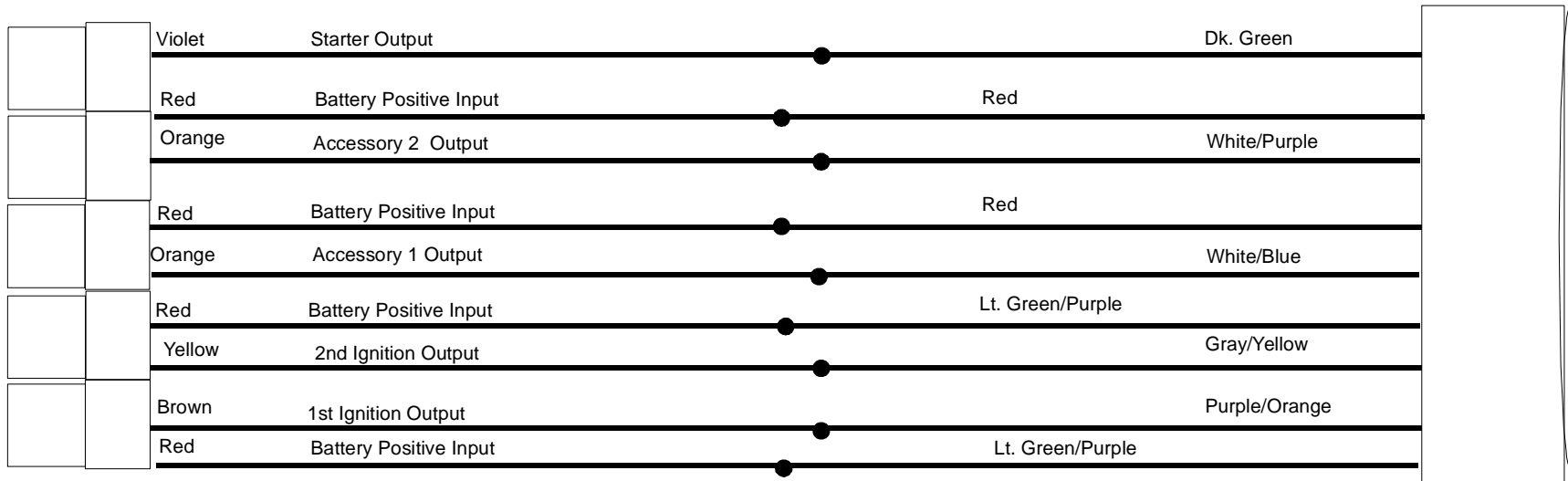
Chilly Dog Ignition Relay Harness Connection

Wire Wrap Technique



Strip away 1" of the insulation on the vehicle wire. Evenly part the strands of the vehicle wire. Strip away 1.5" of insulation at the end of the system wire. Thread the uninsulated portion of the system wire between the parted strand of the vehicle wire. Wrap the threaded uninsulated system wire around the uninsulated vehicle wire. Solder the uninsulated system wire to the uninsulated vehicle wire. Wrap electrical tape to cover the uninsulated system and vehicle wire connection.

Example for a 2007 Ford Crown Victoria



Ignition Switch

Installing the Ignition Switch Relay Harness

The vehicle's ignition harness contains many of the wires that are necessary to start and run the vehicle. This includes power, starter signal, ignition feed, and accessory feed to the AC blower and fan. Even though the vehicle may start and run it may be necessary to energize multiple ignition/accessory feeds for the system to work properly.

On certain Chevy models you must connect a second ignition wire or you will damage the transmission control module!

Please consult with us if you are unsure any wire connections.

Programming the Tachometer Signal

After the system is installed, you must program the system to register the vehicle's tach signal for proper operation. If the installation is on a tachless diesel vehicle, then you must change feature programming.

Start the vehicle with the ignition key, within 10 seconds;

Press and hold the program button, the LED inside the MCU view port will light constant, (see page 7 for location) release the button and shut off the vehicle.

The tach signal has been learned.

If the LED fails to light, raise the RPMs when programming and check your tach wire connection.

To Enter Feature Programming Mode

Most vehicles do not require changes to the default features. More commonly the vehicle run time may be extended for use in very warm climates to reduce engine restarts. There is no factory reset for these features, once change, the option must be reprogrammed if the factory setting is desired.

With the key, turn the ignition on and then back off.

Within 10 seconds press and release the Program button the amount of times corresponding to the feature number.

Press and hold the program button.

The Program LED will blink corresponding to the feature number

Momentarily ground the White/Blue wire "Pin# 4" to toggle the settings.

Release the Program button.

NOTE

The system will exit programming if the ignition is turned on, the Program button is pressed too many times, or more than 15 seconds elapses between steps.

Feature Programming List

Feature	Default	Led On	Led Off/Flash
1		Engine Check On	Engine Check Off
2		Tach Check	Voltage Check
3		Run Time 12 Min(2)	Flash = 24 Min, 3 Flash = 60 Min
4		Not Used	
5		Crank Time .6 Sec (1).08 (2), 1. (3), 1.2 (4), 1.4 (5), 1.6 (6) 1.8 (7), 2.0 (8), 4.0 (9)	
6		Voltage check high	Voltage check low
7		Not Used	
8		Activation pulse 1 (1)	Do not change!
9		Ignition Output	Do not change
10		No Acc during wait start	Acc During wait to start
11		Status out (1)	Do not change
12		Not Used	
13		Not Used	
14		Not Used	

Feature Programming Explained

1. The default selection enable the system to look for either a tach signal (also default see feature 2) or battery voltage to determine if the vehicle's engine is running. If this feature is selected off then the system will crank the starter for the selected time (feature 5) then energize the Activation circuits for the run time (feature 3) even if the vehicle did not start. It is recommended to use the default selection.

2. Tach wire/Voltage Sense: . If you are using voltage sense then the violet wire, Pin# 3, does not have to be connected. In voltage sense the unit will crank the starter for the time set by feature 5. When the starter has been engaged the system will check voltage to determine if the engine is running. The voltage level can be programmed to a high or low setting, see feature 6.

3. Run Time: This setting controls the duration that the engine runs per activation. The default time is 12 minutes and can be change to 24 or 60 minutes. LED will **blink 1=12min**, 2=24min, 3=60min.

4. This feature selects the characteristics of the Aux 3 output. The default selection causes the output to flash during Activation mode. Selecting this off will cause the output to be constant during Activation mode. See wire hook up for details.

5. Starter Crank Time: If step 1 is programmed for voltage sense, you may need to change the crank time, default 1 sec. If a different crank time is required momentarily ground the white/blue wire in relation to the desired time, 1 ground pulse = .6 sec., **2 = .8 sec.**, 3 = 1 sec., 4 = 1.2 sec., 5 = 1.4 sec., 6 = 1.6 sec., 7 = 1.8 sec., 9 = 2 sec. The LED will blink the corresponding number of times.

6. Check Voltage: Some vehicle have a number of accessories that are energized when the engine is started. For these vehicles the voltage variation between engine off and running can be very low and the system may not see the engine as running. For these vehicle program the LO setting.

7. Internal Programming Feature: DO NOT CHANGE SETTING!

8. Activation Pulse. This setting determines how many pulses are need to trigger the start up process.: DO NOT CHANGE SETTING!

9. Changes Pink wire from ignition output to ACC
DO NOT CHANGE SETTING!

10. Turn the ACC output on or off during wait to start when installed on a diesel powered vehicle.

11. Status output adjustment. DO NOT CHANGE SETTING!

12. Internal Programming Feature: DO NOT CHANGE SETTING!

13. Internal Programming Feature: DO NOT CHANGE SETTING!

14. Internal Programming Feature: DO NOT CHANGE SETTING!

Programming the Temperature Thresholds

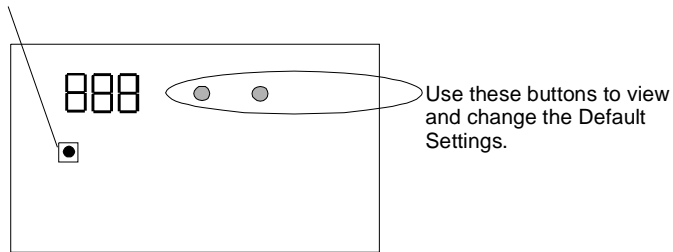
There are two independent temperature settings that trigger Activation Mode (Local High Start Output 1), and trigger Alert Mode (Remote High Alert Output 2).

The factory default settings are Local Start 79, and Remote Alert 99.

To enter Programming Mode;

Remove the CTD cover.

Press and release the programming button located on the CTD.
Press and release this button to scroll through the 15 parameters.



There are 15 programmable parameters for the CTD that adjust the following:

Parameter	Display	Default	Min	Max
Fahrenheit or Centigrade	F-C	F	F	C
Remote Probe Enabled	rEn	YES	n0	YES
Display Local or Remote Probe	dSP	LCL	LCL	rPr
Set Local Low Limit	LL0	32	32	140
Set Local High Limit	LH1	79	32	140
Set Remote Low Limit	rLO	0	-40	140
Set Remote High Limit	rH1	99	-40	140
Select Output Mode	Out	n0	n0	nC
Map for Output 1-See Table	Out1	1-	1-	1-
Map for Output 2-See Table	Out2	2-	2-	2-
Set Alarm Delay for Relay 1	dL1	0	0	255
Set Alarm Delay for Relay 2	dL2	0	0	255
Enable Local Buzzer	Aud	n0	n0	YES
Local Buzzer Silence Time	SIL	0	0	255
Reset Degrees	HYS	2	0	10

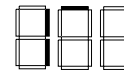
Table for Output(s) Map Designation Expanded

The CTD comes pre-programmed to work with the Chilly Dog system. The settings allow for two high triggers that output to the main control module. The first is designated to output 1 and is used to activate the temperature controlled startup, The second is designated to output 2 and is used to activated the High temperature alert. The Chilly Dog can also be set to start the vehicle or alert based on low temperatures. See Parameter setting 9 & 10 (Output 1 & Output 2 map designations)

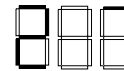
Output 1 = Temperature Controlled Startup

Output 2 = Temperature Activated Alert

Default

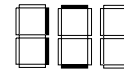


Output 1-Local High Start



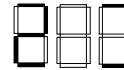
Output 2-Remote High Alert

Expanded (High & Low Temperature Start)



Output 1-Local High & Low Start

Expanded (High & Low Temperature Alert)



Output 2-Remote High & Low Alert

Note:

If using a window drop module in low temperature alert mode, the windows will roll down when the low temperature is reached.

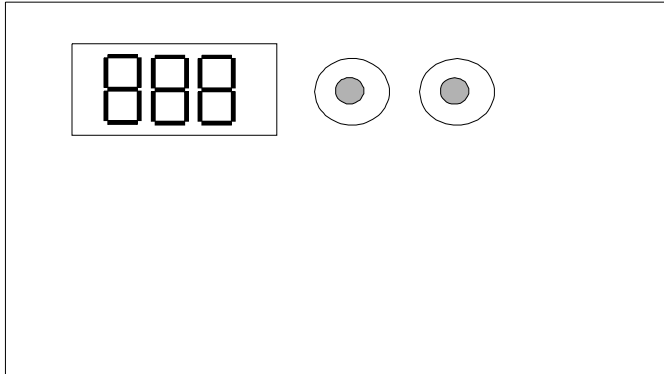
Operating Instructions

Factory Air Conditioner Setup

The vehicle's factory air conditioner must be configured in order for the Chilly Dog to operate properly.

A manually adjustable controller is the most common type found on vehicles today. This type requires the operator or user to activate a lever and or button to select whether or not the AC will be on while the engine is running. It can also include a lever or switch that allows the user to adjust the intensity or output. For this type the AC must be left in the on position and the intensity should be set to maximum.

An electronically programmable controller requires the user to program the desired interior temperature into memory. Again the controller must be set to the on position, and the AC controller should be programmed to a low setting.



Operational Example When Using the optional Horn Honk Module;

Even if the Chilly Dog system has not been turned on by the handler via the Ready/Standby switch, the Alert feature will trigger when the Remote High temperature reaches 99 degrees. In this case the handler should first turn on the Chilly Dog via the ready switch. Once the vehicle starts, the handler should turn the ignition key to the run position; (do not step on the brake or turn the ignition key to the crank position); then press the Alert override button. This will stop the horn from honking. Once the Chilly Dog has completed one 12 minute run cycle, the Chilly Dog will then shut down the vehicle and restart if the Local Start temperature is at or above 79 degrees. The system will automatically return to Alert Mode.

Modes of Operation

The Temperature Startup feature has four modes of operation;

(1) Override, (2) Standby, (3) Ready, and (4) Activated

(1) Override Mode

The system is in Override Mode whenever the vehicle is already running via the key, the vehicle is not in park, the brake pedal is pressed (positive shutdown signal present), or the vehicle's hood is in the raised position (negative shutdown signal present). Override Mode supersedes all other modes!

(2) Standby Mode

The system is in Standby Mode when the system ready LED is off. This is located at the CTD "Programmable Temperature Display". This is controlled by the push-button switch also located at the CTD. In the Standby mode the system **WILL NOT** start the vehicle engine based on the temperature inside the cabin of the vehicle.

In this mode;

The vehicle can be started by a pulse negative input at the White/Blue wire, pin # 4.

This can be supplied by an optional momentary switch or alarm system remote control input.

(3) Ready Mode

The system is in Ready Mode when the system On/Off switch is switched on and the vehicle's transmission is in park. The ready LED on the On/Off switch will light on. In this mode the system monitors the vehicle's cabin temperature. When the Local High programmed temperature is reached, the system goes into Activated Mode (4).

(4) Activation Mode

In Activated Mode the vehicle's engine is started and the circuits necessary to operate the air conditioning system are powered on. Activated Mode will stay on for 12 minutes (factory) or program (24 or 60) minutes, then the system will return to the mode it was in prior to activation. The system can go into Activated Mode by reaching the programmed temperature as described in (3) or by a negative pulse at the White/Blue wire pin # 4 as described in (2).

The Alert feature has three modes of operation;

(1) Alert Ready, (2) Alert, (3) Alert Override.

(1) Alert Ready Mode

The system is normally in Alert Ready Mode. In this mode the system monitors the vehicle's cabin temperature and reports high temperature trouble. The factory default setting is 99 degrees Fahrenheit..

(2) Alert Mode

The system is in Alert Mode when the programmed Remote High temperature threshold is reached or exceeded. A negative signal will be generated at the Orange wire, pin #5, and can be connected to a number of trouble reporting devices including a horn honk module, remote pocket pager, and window drop module.

(3) ****NEW FEATURE**** Alert Override Mode

The system can be switched to Alert Override mode by switching the vehicle ignition key to the off position then pressing the Alert Override Momentary Switch. The Chilly Dog temperature start feature will function normally, however, no high alert output will be generated. The system will automatically return to the Alert Mode the next time the vehicle is started or if the White wire on pin # 9 of the main harness receives a momentary ground input.