

NEW!

ThermaSync Instructions

# Frost Fighter® ThermaSync Defroster Controls

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## ThermaSync® Defroster controls with smarts



### 2700 R Series

Blue



2712  
ThermaSync, 12 Volt

Orange



2724  
ThermaSync, 24 Volt

### 2800 M Series

Green



2812  
ThermaSync, 12 Volt

Red



2824  
ThermaSync, 24 Volt

## Defroster Control Instructions

ThermaSync™ Defroster Controls are the perfect companion to Clear View II and other defrosters.

All four ThermaSync models feature a remote defroster switch with red indicator light and automatic shut-off timing.

### 2712/2724 ThermaSync Controls, R Series

The 2700 R series controls provide simple automatic ten-minute timing in 12 and 24 volts.

### 2812/2824 ThermaSync Controls, M Series

The 2800 M series of defroster controls feature adjustable automatic shut-off timing, power modulation and can be connected in a network to control multiple defrosters with a single switch.

All controls and defrosters are available in 12 and 24 volts.

### 2728 ThermaSync Installation Pack

The 2728 Installation Pack makes it easy to install ThermaSync defroster controls and includes a color-coded wire harness, fuse holder, fuse and other installation components.



# Clear View II Electrical and wiring

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## Wiring Harness

Important! The vehicle must be running to operate the defroster.

Clear View defrosters come complete with the wire harness and connectors needed to install the defroster. All wires are labeled and color coded for easy identification. Match the "W" number on the wire with the description below.

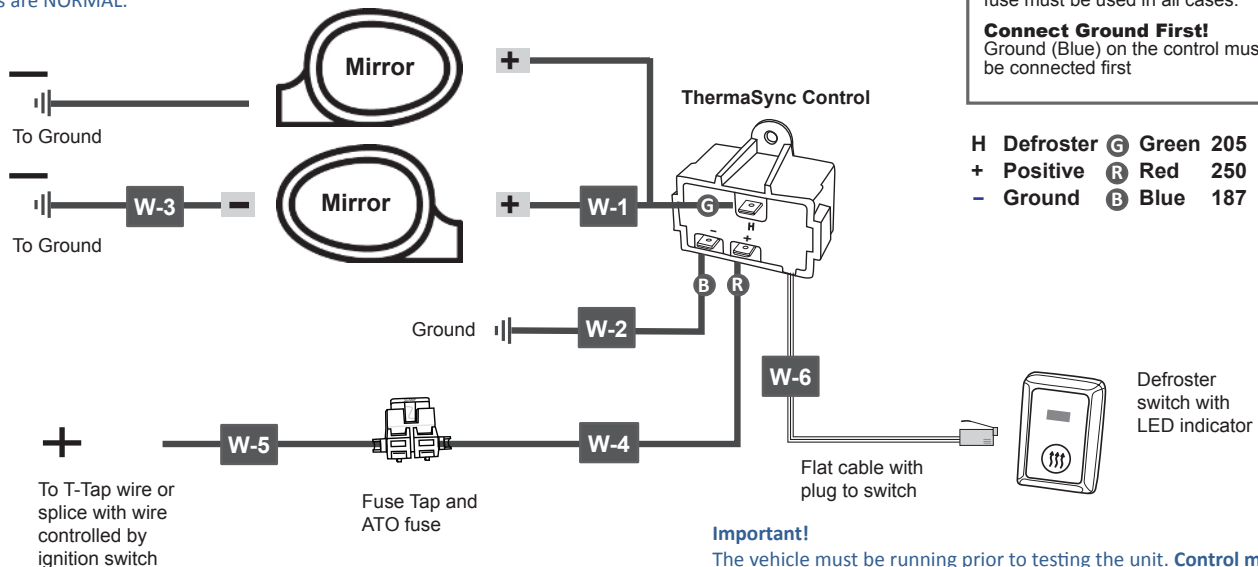
No.	Connection	Terminals		Length
		End 1	End 2	
W-1	Defroster to control	205 Faston + Green Cover	(2) 187 Faston + Blue Cover	10 Feet (2.8 m)
W-2	Control to ground	187 Faston + Blue Cover	Spade Terminal	19 in (48 cm)
W-3	Defroster to ground	(2) 187 Faston + Blue Cover	Spade Terminal	42 in (107 cm)
W-4	Control to fuse tap	250 Faston + Red Cover	Bare, Not Stripped	30 in (76 cm)
W-5	Fuse to power tap	250 Faston + Insulated	Bare, Not Stripped	14 in (35.5 cm)
W-6	Cable from control module to switch (H)	Attached to control	Plug for switch	38 in (96 cm)

## Wiring Diagram

Important! If replacing wire use 14 awg or bigger.

### Power Modulation and Power Measurement

ThermaSync 2812 and 2824 defroster controls modulate the apparent power the defroster receives. Measuring the voltage from modulating power control is NOT possible using a standard volt meter. Low power readings and pulsing power readings are NORMAL.



## STEP 1

### Wire ThermaSync Control

Start the installation by wiring the control module. The module has three terminals each with an identifying letter stamped in the plastic base. The legend for these letters is shown in the wiring diagram. Connectors are color coded and of different sizes.

1. Attach wire W-1 to the module terminal marked "H" using the faston with the **GREEN** cover.
2. Attach wire W-2 to the module terminal marked with the "-" symbol using the faston with the **BLUE** cover.
3. Attach wire W-4 to the module terminal marked with the "+" symbol using the faston with the **RED** cover.
4. Attach the spade terminal of wire W-2 to electrical ground in an area under the dash using one of the kit's self-tapping screws if needed.

**Warning: Pulling on the wires to remove the faston connectors from the ThermaSync control can separate the module.** Wiring the control in any other manner will damage the unit and is not a warranty item.



## STEP 2

### Mount Control and Switch

Once all three wires are attached to the ThermaSync control, secure it behind the dash using wire ties, or a self-tapping screw. There are two ways to mount the remote activation switch.

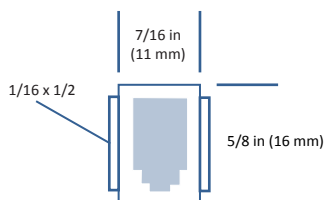
#### Option 1. Under Dash Mount

1. File two small slots in the under dash switch mount to allow the connector the switch to pass.
2. Mount the dash switch plate in a convenient location with easy access to defroster on/off switch using the self-tapping screws.
3. Insert the connector into the switch, peel away the release film, and adhere to plate with the red LED up.

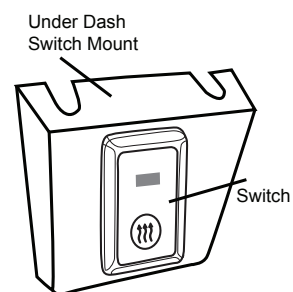


#### Option 2. In-Dash Mount

If an in-dash installation is preferred, drill 7/16 in. (11mm) hole in an appropriate area on the dash. File to fit the connector on the back of the switch. Next run the flat cable through the hole, remove release coating and connect to the switch. Press the switch into place.



*Switch mounting template. This is approximately the size hole needed to mount the switch in a dash.*



*Mount in the dash or use the under dash mounting plate.*

**Important! The vehicle must be running prior to testing the unit.**

## STEP 3

### Tap Vehicle Power

Tapping into the vehicle's power is a critical step in the installation process. There are several ways to go about tapping into vehicle power. The two most popular are:

#### Option 1. Wire Tap

Find an existing wire to tap and follow these instructions.

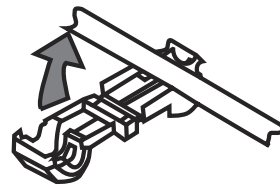
1. Near the fuse box, locate a wire that is about the size of the W-5 wire supplied (14 awg) and is activated when the ignition switch is turned on.
2. Place the wire in the open channel of the Wire Tap (016) supplied, fold the tap body and crimp with pliers.
3. Slide wire W-5 end 1 (blue terminal) onto the wire tap and secure any loose wire with a tie.

**WARNING:** In all cases the fuse and wire used must be adequate to handle 20 amps plus the amperage required by the other units on the same circuit. See wiring diagram.

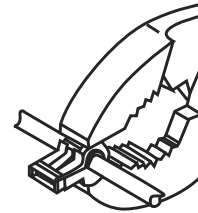
Do not use wire taps on wire under 16 awg, over 14 awg or on solid wire.

#### Option 2. Splice

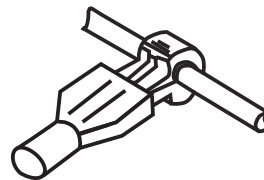
Cut off the connector (end 1) of wire W-5 and strip away insulation. Attach the end of wire W-5 to a fuse position or splice into wire which is activated when the ignition switch is turned on.



*Tap into power wire controlled by ignition.*



*Fold and crimp*



*Insert W-5 in wire tap*

## STEP 4

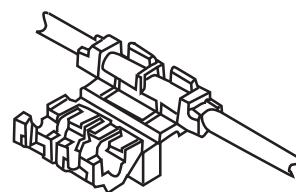
### Installing the Fuse

Once wire W-5 has been connected to the vehicle's power, connect wire W-4 with W-5 using Fuse Tap (015).

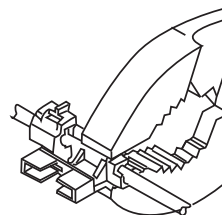
1. Locate the free ends of W-5 and W-4. Check wire lengths and trim to a comfortable length. Do not strip back insulation.
2. Insert the free end of W-4 into the Fuse Tap making sure to seat the wire through the tap so that it presses against the center stop in the Tap.
3. Repeat for wire W-5 end 2
4. Using pliers, fold the connector body and crimp.
5. Insert ATO fuse supplied and seat it firmly in the fuse tap. It can take some pressure to seat.

**WARNING:** In all cases the ATO fuse and fuse tap **MUST** be used.

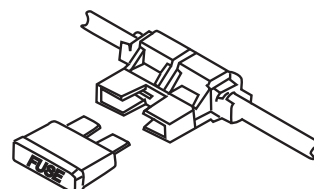
Vehicle power has been tapped and now runs to the Control Module.



*Connecting both wires (W-4 & 5) with fuse tap.*



*Fold the fuse tap and crimp.*



*Insert and seat fuse.*

## STEP 5

### Run Wire to Defroster

Run wire W-1 (the long one), already attached to the control module back to the rear window defroster. Take a moment to consider on which side and where it will attach to the defroster.

Wire W-1 can be run under carpet, side molding or under overhead molding, whichever is the most feasible on your vehicle. Part of the wire may be concealed under the rear deck but will require drilling.

If the wire is too long do not cut the wire at this stage!

#### Grounding

A grounding strap may be needed, connecting the ground on the molding to a ground on the chassis itself in order to provide adequate grounding.

All grounding connections should be secure and the grounding points should be clean and clear of all insulating materials and paint. This is necessary to avoid shorting out the defroster circuit.

## STEP 6

### Connect Defroster

Connect wire W1 to one of the integral tabs on the buss bar. If wire W-1 is too long it can be shortened. Use the extra faston terminal supplied in your kit to attach in place of the one removed. Simply cut off attached faston and crimp on the new faston.

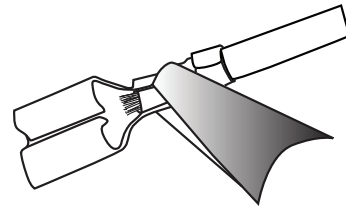
Next attach wire W-3 (ground) to the other integral buss bar tab. Wire W-3 can be grounded in the trunk area by drilling a hole in the rear deck or it can be grounded to the rear window frame if it is metallic and grounds to the chassis.

If you wish to connect the grounding wire to the window moulding area, care must be taken as the window moulding screws will probably not supply sufficient grounding.

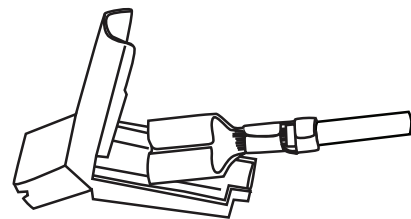
#### A good ground is very important!

*Wire W-3 can be shortened and a forked terminal (018) can be crimped to permit attachment to the window moulding or grounding area inside the trunk.*

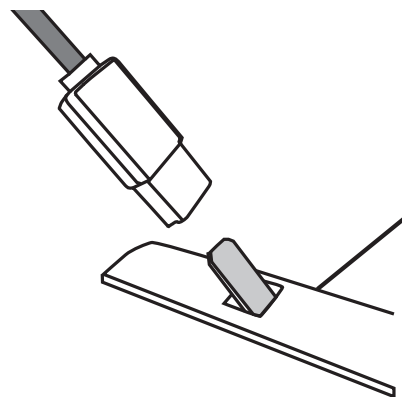
#### To shorten defrost wire...



*Trim wire to length and strip insulation. Crimp connector to wire using needle nose pliers*



*Insert connector in cover and snap shut*



*Connecting power and ground to the defroster via the integral tabs*



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## Troubleshooting

If defroster does not operate check the following:

- A. Switch light flashes but goes off. Start the vehicle.  
The vehicle must be running to operate defroster.
- B. See that the defroster switch is on.
- C. Allow sufficient time for heat elements to function, about 10 minutes.
- D. See if the fuse is blown: if so, replace with one of same type and current voltage rating.
- E. Verify that the light is on when you press the defroster's "on" switch. If the light is not on there is no power to the Control Module. Check the wiring on the control module.
- F. Check to see if there is 12+ vdc on the buss bar faston connectors. To do this use a volt meter and connect the leads to the defroster buss bar tab/clips. If there is power to the connectors then the problem is in the defroster grid. Inspect the buss bar/copper element connection carefully.
- G. FIRMLY press the black plastic cover down on the buss bars concentrating pressure over each of the grid/buss bar junctions.
- H. If condition persists, contact The PipeKnife Company.

### ThermaSync Defroster Control Settings

The ThermaSync 2812/2824 controls allow for several timing options from 10 to 160 minutes or manual operation. The settings are selectable by changing the jumpers on the circuit board.

To make a change in the timing please contact The PipeKnife Company for the proper settings.



In addition to timing, the control's power modulation is set by internal jumpers. **DO NOT CHANGE THESE JUMPERS.**

The defroster and control are matched. Changing the power modulation settings will cause the defroster to fail.

ThermaSync 2712/24 Controls do not feature power modulation or adjustable timing and are not SwitchBoss Compatible.

**UNDER NO CIRCUMSTANCE CHANGE THE POWER MODULATION JUMPER SETTINGS ON THE PRINTED CIRCUIT BOARD.**

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