

## DIGITAL THERMATIC® FAN SWITCH with 1/4" NPT SENSOR & ADAPTER KIT INSTRUCTIONS

This switch is setup for 12V usage - for 24V applications replace the built in 12V relays with 24V relays.

**PLEASE READ ALL THESE INSTRUCTIONS THOROUGHLY BEFORE YOU START WORK.  
DON'T RUSH - ENSURE YOU HAVE FULL UNDERSTANDING OF THE WORK AHEAD BEFORE YOU COMMENCE.**

### COMPONENTS - #0435

- ⊕ 1 x Digital Thematic Fan Switch
- ⊕ 1 x Temperature Probe Mounting Kit
- ⊕ 1 x Temperature Probe
- ⊕ 1 x 1/4" NPT Thermal Sensor Kit
- ⊕ 1 x Red 6mm Ring Terminal
- ⊕ 1 x Blue 6mm Ring Terminal
- ⊕ 2 x Blue Connectors
- ⊕ 2 x Self-Tapping Screws
- ⊕ 1 x 35mm Inline Adapter
- ⊕ 2 x 3mm Rubber Sleeves
- ⊕ 2 x Hose Clamps

### COMPONENTS - #0438

- ⊕ 1 x Digital Thematic Fan Switch
- ⊕ 1 x Temperature Probe Mounting Kit
- ⊕ 1 x Temperature Probe
- ⊕ 1 x 1/4" NPT Thermal Sensor Kit
- ⊕ 1 x Red 6mm Ring Terminal
- ⊕ 1 x Blue 6mm Ring Terminal
- ⊕ 2 x Blue Connectors
- ⊕ 2 x Self-Tapping Screws
- ⊕ 1 x 38mm Inline Adapter
- ⊕ 2 x Hose Clamps



<b>Rated Voltage</b>	12V or 24V
<b>Rated Continuous Current Draw</b>	30 Amps
<b>MAX Current Draw</b>	40 Amps
<b>MAX Start Up Current</b>	60 Amps
<b>Temperature Setting Range</b>	40°C - 110°C (104°F - 230°F)
<b>Ingress Protection</b>	IP66

### OPERATION

Fan #1 will start at the set temperature. Fan #2 will start 10 seconds after Fan #1. Both fans will operate until the temperature has been reduced to 5°C (9°F) below your set temperature.

### SWITCH MOUNTING

Mount the switch in the engine bay, in a convenient location using the self-tapping screws provided.

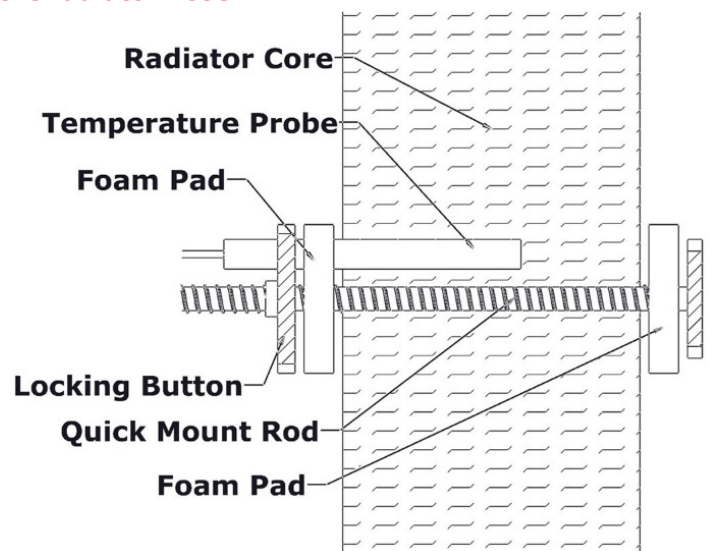
- **Temperature Sensor wire MUST NOT be cut in ANY circumstances.**
- Ensure the mounting location allows easy access to the set button.
- Keep unit away from high heat sources, such as exhaust manifolds etc.

### OPTION 1: INSTALLING THE TEMPERATURE PROBE INTO THE RADIATOR

Requires access to the front and rear face of the radiator. Remove the radiator and/or condenser, if necessary.

**The Temperature Probe MUST NOT be installed under the radiator hose.**

- ⊕ Select a Temperature Probe mounting location that will not interfere with the fan/s.
  - For optimum performance, install the Temperature Probe as close to the hot coolant inlet as possible.
  - The Temperature Probe must **not** extend through the radiator core as this will affect the switch's operation.
- ⊕ Remove the backing paper from foam pad. Slide the foam pad onto the quick mount rod so the pad adheres to the head of the quick mount rod.
- ⊕ Gently separate the radiator fins where you propose to insert the temperature probe
  - A small screwdriver can assist with this.
- ⊕ Insert the Quick Mount Rod between the separated fins. Push the Locking Button and Sensor onto the Quick Mount Rod to sit flush with the face of the radiator. Cut off excess quick mount rod.



**Installing the Temperature Probe directly into coolant requires part #0418 (NOT SUPPLIED).**

## **OPTION 2: INSTALLING THE THERMAL SENSOR INTO THE TOP HOSE**

If you would prefer to install the Thermal Sensor in the top Radiator Hose, use the 1/4" NPT Thermal Sensor and Inline Adapter provided.

- ⊕ Install the Thermal Sensor into the Inline Adapter, making sure not to over tighten or damage the sensor.
  - You may require some thread tape or sealant to achieve a watertight seal.
- ⊕ When the cooling system is cold, remove top radiator hose and confirm the inside diameter (ID) of your top radiator hose prior to cutting hose.
  - Rubber sleeves may be required to accommodate larger ID hose sizes.
    - Part #18510 – 3mm {1/8"} Rubber Sleeve Increases Adapter OD by 6mm (supplied with #0435)
    - Part #18511 – 6mm {1/4"} Rubber Sleeve Increases Adapter OD by 12mm (NOT SUPPLIED)
- ⊕ If the parts supplied are suitable, cut approximately 20mm out of the top radiator hose and install the Inline Adapter Assembly and secure with the hose clamps.
- ⊕ Unplug the Temperature Probe from the Sensor Wires and plug in the 1/4 NPT Thermal Sensor.



## **OPTION 3: INSTALLING THE THERMAL SENSOR INTO A THREADED PORT**

If you would prefer to install the Thermal Sensor into the thermostat housing, engine block, or directly into the radiator, use the 1/4" NPT Thermal Sensor.

- ⊕ Unplug the Temperature Probe the Sensor Wires and plug in the 1/4 NPT Thermal Sensor.
  - Thread adapter fittings (not supplied) may be required.
  - You need to be mindful that the location of the Thermal Sensor can affect the temperature reading and adjustments may be needed when setting the target temperature.
  - When a port is not available, it is possible to drill and tap a hole for locating the Thermal Sensor. When tapping a custom port, you need to be certain there is a minimum wall thickness of 3mm.
  - If tapping a hole is not possible, a weld-on 1/4"NPT fitting can be installed.
- ⊕ Install the Thermal Sensor into the port, making sure not to over tighten or damage the Thermal Sensor.
  - You may require some thread tape or sealant to achieve a watertight seal.



## **\*OPTIONAL: 1/8" NPT THERMAL SENSOR INSTALLATION**

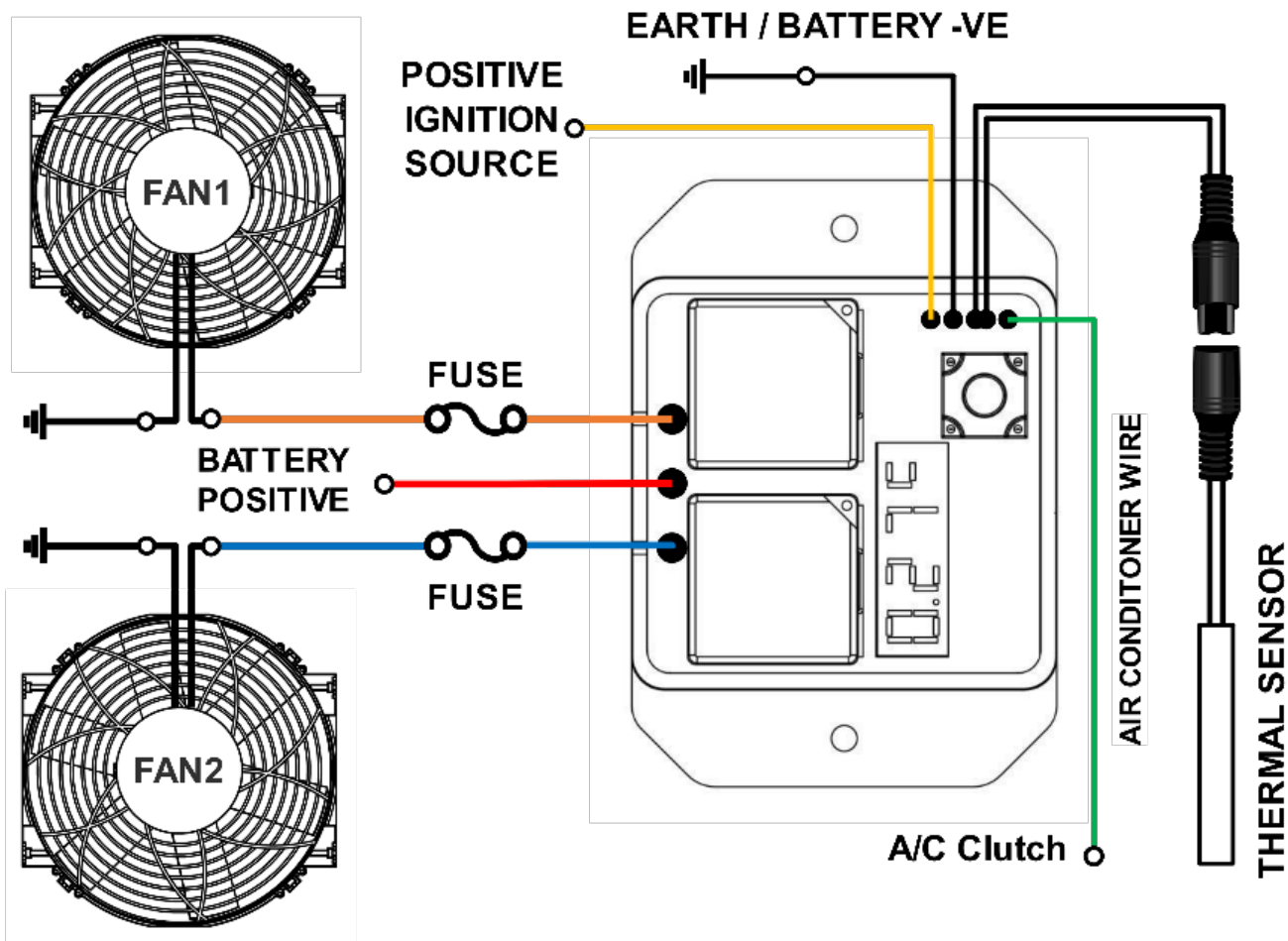
### **#0435 and #0438 Require #0468 (Sold Separately).**

If you would prefer to install the Thermal Sensor directly into the coolant using an aftermarket adapter or existing threaded port, use the 1/8" NPT Thermal Sensor.

- ⊕ Unplug the Temperature Probe the Sensor Wires and plug in the 1/8" NPT Thermal Sensor.
  - Thread adapter fittings (not supplied) may be required when using existing ports.
  - You need to be mindful that the location of the Thermal Sensor can affect the temperature reading and adjustments may be needed when setting the target temperature.
  - When a port is not available, it is possible to drill and tap a hole for locating the Thermal Sensor.
- ⊕ Install the Thermal Sensor into the port, making sure not to over tighten or damage the Thermal Sensor.
  - You may require some thread tape or sealant to achieve a watertight seal.

**Part #0468: 1/8" NPT Thermal Sensor Upgrade Kit**





## WIRING

- ⊕ Connect the **RED** "BATTERY +VE" wire to battery positive.
  - **RED** Battery wire **does not** require a fuse as each fan is individually fused.
- ⊕ Connect the **BLACK** "EARTH" wire to the chassis or negative Earth.
- ⊕ Connect the **YELLOW** "IGNITION" wire to a Positive ignition or accessories source.
  - DO NOT wire to the ECU or the ignition coils as this can cause operational issues
- ⊕ Temporarily connect the **ORANGE** "FAN 1" wire to one wire of Fan 1.
  - Temporarily connect the remaining wire of Fan 1 to earth.
- ⊕ Temporarily connect the **BLUE** "FAN 2" wire to one of the wires of Fan 2.
  - Temporarily connect the remaining wire of Fan 2 to earth.
- ⊕ Ensure fan/s are rotating in correct direction – indicated by the arrow on the fan hub.
  - To test the fan/s, temporarily connect the **GREEN** "AIR CONDITIONER" wire to battery positive.
  - If the fan/s are rotating in the correct direction. Make the connections permanent, if not swap the motor leads and make the connections permanent.

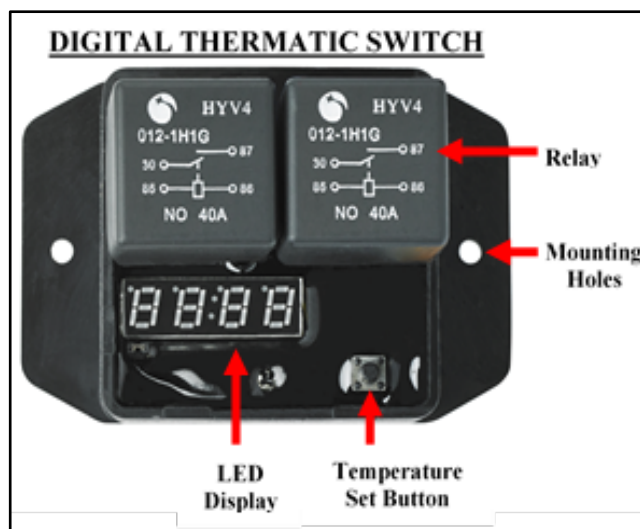
## OPTIONAL:

- ⊕ Connect the **GREEN** "AIR CONDITIONER" wire to A/C Compressor.
  - the "AIR CONDITIONER" wire can be used as a manual override by simply connecting it to a positive source through a switch.

**\*For positive earth systems, wire 'Earth' to battery negative not the chassis**

## **SETTING TARGET TEMPERATURE (Factory Set temp is 85°C = 185°F)**

- ⊕ Press the '**Set Button**' once to display the present temperature setting.
  - Press and hold the '**Set Button**' to switch between °C & °F.
- ⊕ Press the '**Set Button**' again to increment the set temperature by 1 degree.
  - Press and hold down the '**Set Button**' to scroll through the temperature range. 40°C (104°F) to 110°C (230°F)
- ⊕ Start the engine and allow the coolant to reach normal operating temperature.
- ⊕ Once normal operating temperature is reached set your target to 10°C (18°F) above temperature displayed. Your setting will be saved to memory after three (3) seconds.
  - Your temperature setting will be retained when the ignition is turned off or when disconnected from the battery.
  - Temperature measured by the Temperature Probe positioned in the radiator fins may be between 10°C & 15°C (18°F & 27°F) lower than the coolant temperature. Adjust your set temperature accordingly.
- ⊕ Continue idling until the fans start, check the fan/s are rotating in the correct direction,
  - The correct rotation direction is indicated by the direction of the arrow on the fan hub.
- ⊕ Turn off the engine.
  - If the fan/s are rotating in the correct direction, make the connections permanent, if not swap the motor leads and make the connections permanent.
- ⊕ Conduct a road test, monitoring engine temperature. If necessary, adjust the set/target temperature to suit your requirements.



## **DIAGNOSTIC CHART**

<b>Condition</b>	<b>Troubleshooting</b>
<b>Unit does not operate</b>	⊕ Check all the wire connections
<b>Err 1</b>	⊕ Check sensor wiring for any short circuits
<b>Err 2</b>	⊕ Check sensor wiring for any open circuits
<b>Temperature does not increase or has constant high reading</b>	⊕ Thermal Sensor Open or Short circuit

**These installation instructions will suit most applications but there are circumstances surrounding some engine designs, environments, and the nature of the system involved, which may require other installation arrangements not outlined here. Frequently Asked Questions (FAQ) are listed on our website [www.daviescraig.com.au](http://www.daviescraig.com.au) . Emails can be directed to [info@daviescraig.com.au](mailto:info@daviescraig.com.au) or Telephone +61 (0) 3 9369 1234 during business hours.**

## **WARRANTY**

Davies, Craig Pty Ltd warrants Electric Water Pumps (EWP), Electric Booster Pumps (EBP), Controllers, Switches and Accessories for a period of two years or 2000 hours continuous running (whichever is the lesser) from the date of purchase. Davies, Craig shall carry out, free of cost, any repairs that are reasonably necessary to correct any fault in the operation of your Davies, Craig product provided that such a fault is directly attributable to a defect in the workmanship or materials used in the manufacture of the part(s). This warranty is void if the product is misused, altered, tampered with, or is installed or used in a manner that is inconsistent with Davies, Craig's written recommendations and/or installation instructions. Labour and consequential costs are excluded. TPMS products carry a 1-year warranty. **DAVIES, CRAIG PTY. LTD.**

**Register your warranty at: [www.daviescraig.com.au](http://www.daviescraig.com.au) under the support tab**