PATENT PENDING

This Fan: Circulates outside air across condenser coil. This is not related to the air circulating inside the house through the ductwork

OUTDOOR AIR HEATED

CONDENSER COIL

SHUTOFF SWITCH

ROOM THERMOSTAT

COOLED SUPPLY AIR

WARM RETURN AIR

BARE COPPER TUBE

PLENUM

INSULATED COPPER TUBE

Return Air Duct

EVAPORATOR COIL

Condenser Coil: Removes heat from the refrigerant inside the Evaporator Coil

COMPRESSOR

THERMOSTAT CONTROL WIRE

CONDENSATION DRAIN TUBE

HEATING COMPARTMENT (OFF IN SUMMER)

FURNACE BLOWER SWITCH

Install HVAC-CHIP at the Air Handler

Air Handler Unit

FILTER

BLOWER MOTOR

FLOOR DRAIN

INSTALL THE HVAC-CHIP ON THE 24 VOLTS SECTION OF THE AIR-HANDLER UNIT. SEE LOWER RIGHT CORNER OF PICTURE ABOVE

Air Handler Unit is a large metal box containing a blower, heating or cooling elements, filter racks or chambers, sound attenuators, and dampers. Air handlers usually connect to a duct work ventilation system. In residential homes, it is usually located in the garage and/or in the attic. In commercial buildings, it is typically located on the roof with the compressor.

Section A: Conventional HVAC Air Handler. Wiring Instructions
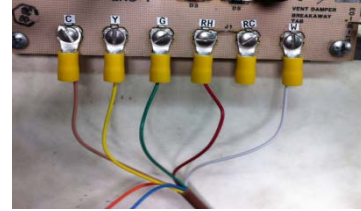
STEP 1: Turn OFF power to the main HVAC or Heating/Cooling System by switching the breaker to OFF.

ON — OFF

STEP 2: Use a screwdriver to remove the screws and remove the front metal cover of the Air Handler Unit.

STEP 3: Locate the 24 Volts Panel Terminal Block (or Bus Bar) which is usually on the PCB (Printed Circuit Board) right behind the metal cover. If there is no PCB, identify the wires from the thermostat and to the solenoids by its color coding.
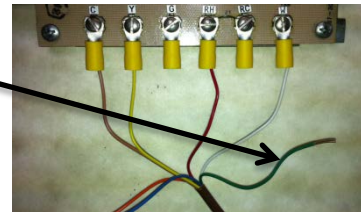
STEP 4: Take a photo or make a sketch of the wire connections. Make sure those connections are clear and readable. This will help you reconnect the wires later.
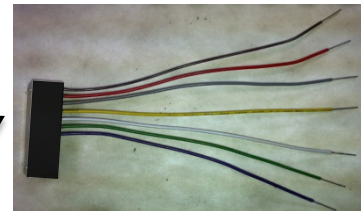
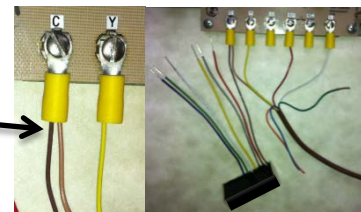**STEP 5:** The HVAC-CHIP works with Conventional, Heat Pump, Gas or Electric HVAC systems.

A. Disconnect the **Green** wire from terminal **"G"** (blower fan wire). Note that this disconnected green wire comes from the thermostat. Internal to the air handler unit, the **"G"** terminal goes to the blower fan solenoid.
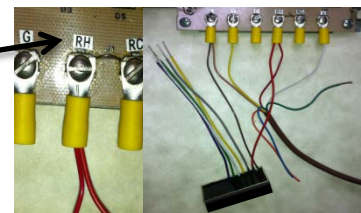
B. Prepare the HVAC-CHIP for connection by straightening out the wires.

A. Add the **Brown** wire of the HVAC-CHIP to the existing wire at terminal **"C"** which is the 24V common wire.
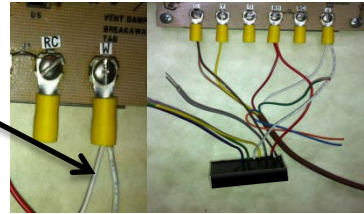
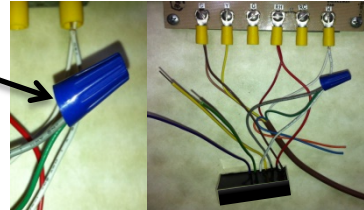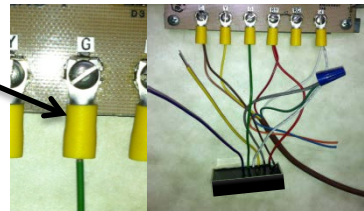D. Add the **Red** wire of the HVAC-CHIP to the existing wire at terminal **"RC"** or **"RH"** of the 24V red wire.

E. Add the **White** wire of the HVAC-CHIP to the existing wire at the **"W"** terminal or the white wire of the thermostat wiring.
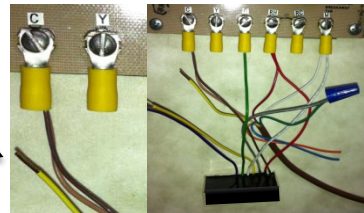
F. Use a wire nut, connect the **Green** wire (previously disconnected in the step (A) to the **Gray** wire of the HVAC-CHIP. *This just means that the HVAC-Chip's Gray wire is now directly connected to the thermostat's green terminal.*
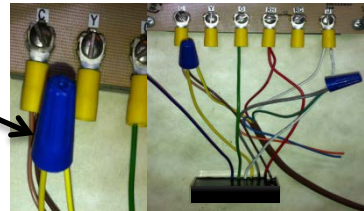
H. Connect the **Green** wire of the HVAC-CHIP to that **"G"** terminal. Note that only one wire is on this terminal. *This means that the HVAC-Chip's Green wire is now directly connected to the blower fan solenoid wire.*
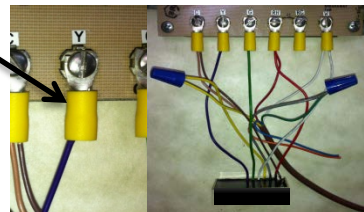
I. Disconnect the original **Yellow** wire from terminal **"Y".** (Also see Section 3)

J. Use a wire nut to connect the **Yellow** wire of the HVAC-CHIP to the original **Yellow** wire (previously disconnected in the step G). *This means that the HVAC-Chip's yellow wire is now directly connected to the thermostat yellow or compressor wire. (Also see Section 3)*

K. Connect the **Purple** wire of the HVAC-CHIP to the **"Y"** terminal. Note that only one wire is connected to this terminal. *This means that the HVAC-Chip's purple wire is now directly connected to the compressor solenoid wiring. (Also see Section 3)*
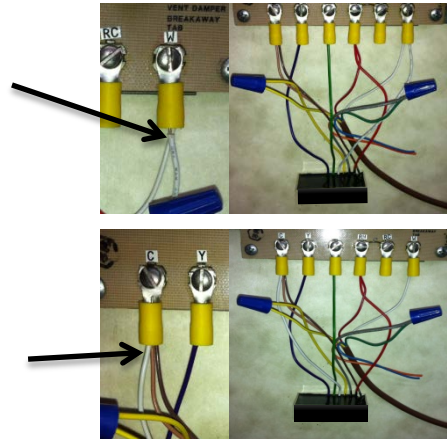
Section B: Heat Pump Air Handler Unit. Wirings Instructions.

PATENT PENDING

A. Follow the steps for conventional HVAC air handler wiring (Section A) connection except for the **White** wire of the HVAC-CHIP. _Do not connect the_ **_White_** _wire from the HVAC-CHIP to this_ **_"W"_** _terminal as in Section A instruction._

B. Instead, connect the **White** wire of the HVAC-CHIP to the common terminal **"C"** (Brown wires) as shown on the right. _Note that after this connection is done, there should be 3 wires on this terminal._ **This connection is only for Heat Pump mode.**
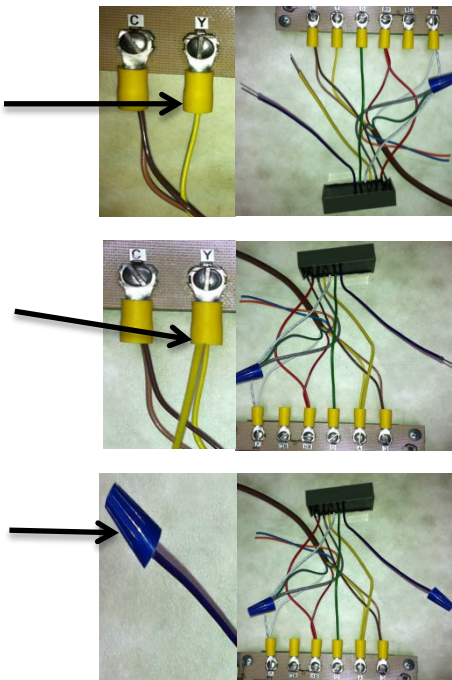

Section C:

CWS-8THEM-0006 will stop compressor run 3 to 4 minutes for every 30 minutes of continuous compressor run time. If this feature is _not needed or not compatible with the HVAC system_, please use the following wiring instructions. This is applicable to all normal conventional air conditioning with gas or electric heating or with heat pump.

A. Keep the original Yellow wire at the terminal "Y". _Do not remove the existing Y wire from its terminals._

B. Add the **Yellow** wire of the HVAC-CHIP to the existing wire at the **"Y"** terminal or the Yellow wire of the thermostat wiring.

A. The HVAC-Chip's purple wire can be left unconnected or cap it with a wire nut. This disables the HVAC-Chip's periodic compressor shuts off feature.

STEP 6: Installation is completed. Be sure the connections are correct and tight . Turn the power back ON.

Run the "TEST INSTRUCTIONS" listed in www.hvac-chip.com to ensure the connections are done correctly.

Application Note:
The CWS-8THEM-0006 is suitable for application in hot regions where the air conditioning compressor does not shut down and keeps running continuously for 30 minutes or more trying to reach the set temperature. It is also suited for applications where the blower ventilation fan must continue to run all day long to meet state regulations for commercial and industrial buildings.

However, the compressor runs interruption for every 30 minutes of continuous runs can be disabled without any effects on the fan extends run time, by following the wiring instructions in Section C above. These extend fan runtime, and compressor interruption functions are completely independent of each other.

Some of the reasons for disabling compressor interruptions functions are:
1) *This function is not needed or desired for whatever reasons.*
2) *The HVAC system (some heat pump defroster boards) does not support compressor interruptions.*
3) *The electrical noise in HVAC systems cause the compressor interruption to behave abnormally. In such as case, we offer noise filters to resolve this issue. Please contact the factory.*

Note: The fan extension is based on an intelligent feedback algorithm similar to proportional integral derivative or PID used in control systems. The fan extension is NOT based on the current compressor run time like other products in the market. It is based on data collected over many previous compressors on cycles and off cycles to predict how long the fan should be extended to maximize the energy savings.

PATENT PENDING