

# FANHANDLER

HOW COMFORT GETS DONE

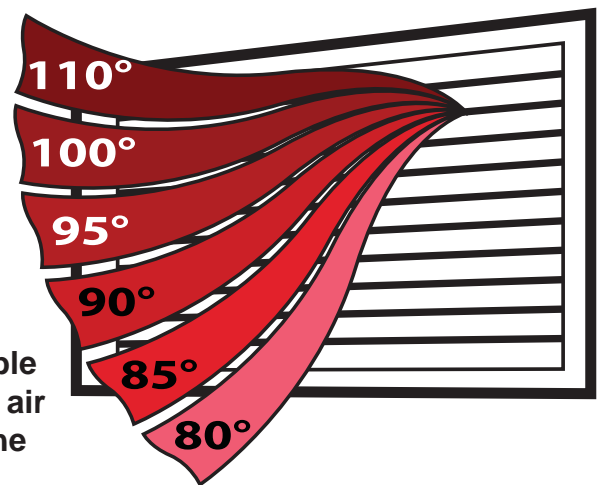
There isn't a heat pump that was ever installed that doesn't **NEED** a FanHandler modulating control.

## IMMEDIATE HEAT IS WHY

- Whenever a heat pump starts in the heat mode. There is a long period when cool air is blown into the home at high velocity.
- Occupants often turn their thermostat setting higher to compensate for the draft. This destroys a large percentage of the energy savings that are built into the machine.
- As outdoor air temperatures drop, the delivered air temperature from the heat pump also drops. At this point the occupants set their thermostat to auxiliary heat.
- Until the HP model FanHandler controls, there wasn't much that could be done about these major problems.
- When the FanHandler is installed, heat is instantly produced and overall delivered air temperatures will average about 15° higher than before.
- Homeowners are happy and aren't complaining about that ##@#!%^ high speed fan.
- The heat pump runs the way it should to produce true comfort and measurable savings.

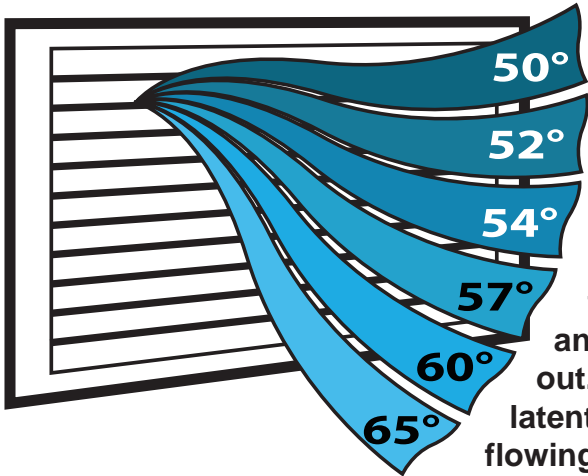
## HEAT PUMP HEATING COMFORT

- When a heat pump operates in the heating mode, the indoor coil is acting as a condenser. Because of its size and design, it is very sensitive to the temperature and velocity of the air delivered through it.
- The FanHandler takes advantage of that sensitivity to control the delivered air temperature so that the maximum temperature for existing conditions is always being delivered.
- As shown to the right, when the heat pump first starts and the temperature across the condenser is cool, the blower's speed is slow. Because of this slow speed, it allows the head pressure to increase rapidly. Head pressure right away means heat right away.
- Because the FanHandler responds immediately to even the slightest change in temperature, the head pressure is always under tight control. Because of this temperature sensitivity, the FanHandler never allows the blower to speed up past the ability of the heat pump to maintain comfortable delivered air temperature. This results in always warm air that averages about 15° higher than it would without the FanHandler installed.
- During the periods of time that the compressor is off, the fan can be run at any adjustable idle speed you want. This results in comfortably circulating air through the home 100% of the time, for system balance. All IAQ products and humidifiers keep working full time at their highest possible efficiency.



# UNMATCHED COOLING PERFORMANCE

When the heat pump starts in the cooling mode, the blower is moving air at a slow speed. This establishes a very cold coil. Because the coil is so cold, the sensible/latent ratio goes to latent. A couple of seconds later, the delivered air temperature drops. The instant temperature



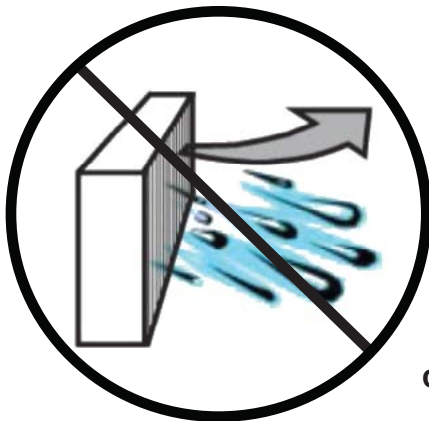
response of the FanHandler causes the blower speed to increase. However, it won't increase past the point where its latent capability is compromised. Refrigerant is always above saturation so it can't slug.

In high humidity conditions, when the FanHandler is first installed, the first impression you'll have is that the fan isn't going fast enough. Put the gauges on and you'll notice that the machine is working its lungs out. That's because the machine is concentrating on the latent load. The discharge air will seem high, but water is flowing out of the drain.

The next day the indoor relative humidity will be maybe 10% lower. The delivered air temperature will be cooler and the blower will be running faster. The reason for this is that there isn't as much latent heat to work on, so the machine stays loaded by working on sensible heat.

You can read a lot more on this subject in the paper “ [Humidity Control & A/C](#)”

## NO RE-EVAPORATION



Now for a very important point: You can run the blower 100% of the time. Because the blower slows down as the coil gets warmer, it doesn't blow the water off the coil. The water runs down the coil just as it should and ends up down the drain and not down the duct work.

Just as important is the FanHandler's action when the A/C compressor turns off.

When the compressor turns off, the coil starts to warm within a couple of seconds. Again, because the FanHandler's reaction is instant, the blower starts to slow down. However, it only reduces the speed to the point that it matches the cooling effect caused pressure equalizing between the high pressure condenser and the low pressure evaporator. On some cap tube installations it might take ten minutes to fully equalize. Keeping the fan running at a slower speed during the pressure equalizing portion of the refrigeration cycle results additional cooling that would be lost if the blower was off. And the coil still collects moisture.

## IMPORTANT ADVANTAGES

**Heat right away - Average delivered air temperature averages about 15° higher during heating**  
- Run the fan 100% of the time in heating and cooling - **Never slug the system - Maximum humidity removal - Condensate down the drain, not down the duct** - Needed on EVERY heat pump EVER installed - Make happy homeowners, not excuses!