

ELECTRO INDUSTRIES - FIELD SERVICE BULLETIN

Bulletin Number 1102 Date December 5, 2006

Product Name Dual Fuel – HP Controller

Affected Product Model Numbers: WF-DFHP1

Serial # _____ through _____

ARL # _____ through _____

Production Date _____ through _____

FIELD INFORMATION

Defrost, Make-Up Heat

Since this product is the interface controller between air source heat pump (single stage or speed) and the gas furnace, there is **no** Electro-Mate, plenum heater, or strip heat. The only source for offsetting the “cold” heat pump coil during the outdoor unit initiated defrost is the gas furnace.

Because of the delay in the gas furnace heat exchanger warm-up and the reverse delay at the end of defrost, gas furnace defrost is basically not a very good idea or often causes other issues.

WF-DFHP1 Control Provision

As mentioned in the installation manual (page 3) there is an optional provision for connecting the outdoor unit W1 to a decal tab labeled “defrost” (T5 and/or brown wire). In most manufacturers’ heat pump the outdoor unit W1 (sometimes also called W2) goes to 24 volts whenever the outdoor unit triggers the defrost sequence.

When this T5 WF-DFHP1 tab is raised to 24 volts, it sends a “W” call to the gas furnace.

The gas furnace “W” call remains as long as this T5 tab is at 24 volts. Assumingly this terminal will drop as soon as the defrost cycle within the outdoor unit ends.

Potential Issue

The gas furnace heat exchanger is at a relatively high temperature by the time the defrost W1 monitor signal ends and at the same time the outdoor unit is switching back to heating. The warm air coming off of the gas furnace heat exchanger is at the indoor coil inlet and before this inlet temperature is brought down to room air there is potential for the outdoor unit going to high pressure and **cycling on high pressure limit**. In some manufacturers this issue is even more severe because the high pressure limit is manual reset. In any case, it is not a good idea to force the outdoor unit into a high pressure mode.

Potential Solutions

1. Do not use the gas furnace for defrost make-up heat; do not connect between outdoor unit W1 and "defrost" tab.
2. Add an optional sensor probe between gas furnace and indoor coil inlet. For typical upflow this becomes difficult because the indoor coil is simply sitting on the top of the gas furnace. However, if the installer is very familiar with the specific indoor coil and its mechanical configuration it may be possible to drill a hole just above the drip pan, center bottom of the "A". Electro has a 100° sensor which requires a 7/8" hole and this probe will reach beyond the drip pan.

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3. Series connect the two wires of this sensor between the outdoor unit W1 and the T5, defrost tab.

Approval



Date

12-5-06