TECHNICAL INFORMATION COMMUNICATION

United Technologies
Building & Industrial Systems

Quality and Continuous Improvement

Number: TIC2014-0005   **Date:** 03/14/2014

Title: Comfort Alert Diagnostic Module Problems

Product Category: Air Conditioners/Heat Pumps

Products Affected	38AU, 569j, 575j
Situation	Comfort Alert Diagnostic Modules (CADM) are being misdiagnosed on system startups.
Technical Information	It has been found that returned CADMs have no problems when checked by the supplier. The problems reported with flash code 3, which is short cycling of compressor, may be caused by low pressure trips, high pressure trips, oversized equipment, incorrect thermostat cycling, low voltage drop from incorrectly sized wiring, or loose electrical connections.

Flash code 3 will be tripped if four consecutive cycles of less than three minutes each occur on the "Y" terminal of the CADM. Before replacing the CADM, verify the cycle times when this flash Code 3 is generated.

Also, the contractor is advised to check for proper transformer voltage selection on 208/230 volt systems, low voltage wire size and check for any loose connections within the low voltage circuit. For wire runs up to 50 ft. (15 m), use no. 18 AWG (American Wire Gage) insulated wire (35°C minimum). For 50 to 75 ft. (15 to 23 m), use no. 16 AWG insulated wire (35°C minimum). For over 75 ft. (23 m), use no. 14 AWG insulated wire (35°C minimum).

Incorrect wiring of the CADM may also cause false codes. The systems wiring diagram and subsequent chart should be followed to correct any miswired conditions, including proper wiring of liquid line solenoids.

Miswired Module Indication	Recommended Troubleshooting Action
Green LED is not on, module does not power up	Determine if both R and C module terminals are connected. Verify voltage is present at module's R and C terminals. Review **24VAC Power Wiring** (page 4) for R and C wiring.
Green LED intermittent, module powers up only when compressor runs	Determine if R and Y terminals are wired in reverse. Verify module's R and C terminals have a constant source. Review **24VAC Power Wiring** (page 4) for R and C wiring.
TRIP LED is on but system and compressor check OK	Verify Y terminal is wired properly per OEM wiring diagram. Verify voltage at contactor coil falls below 0.5VAC when off. Verify 24VAC is present across Y and C when thermostat demand signal is present. If not, R and C are reverse wired.
TRIP LED and ALERT LED flashing together	Verify R and C terminals are supplied with 19-28VAC.
ALERT Flash Code 3 (Compressor Short Cycling) displayed incorrectly	Verify Y terminal is connected to 24VAC at contactor coil. Verify voltage at contactor coil falls below 0.5VAC when off.
ALERT Flash Code 5 or 6 (Open Circuit, Missing Phase) displayed Incorrectly	Check that compressor T1 and T3 wires are through module's current sensing holes. Verify Y terminal is connected to 24VAC at contactor coil. Verify voltage at contactor coil falls below 0.5VAC when off.
ALERT Flash Code 8 (Welded Contactor) displayed incorrectly	Determine if module's Y terminal is connected. Verify Y terminal is connected to 24VAC at contactor coil. Verify 24VAC is present across Y and C when thermostat demand signal is present. If not, R and C are reverse wired. Verify voltage at contactor coil falls below 0.5VAC when off. Review **Thermostat Demand Wiring** (page 4) for Y and C wiring.

References