Over Temperature ($O_t\ H_S\ n$) trips

This document pertains to UNIDRIVE Size 5

**WARNING**

DO NOT ASSUME POWER IS OFF BECAUSE THE DRIVE DISPLAY APPEARS DEAD OR NO FANS ARE HEARD.

THE VOLTAGE APPLIED TO THIS DRIVE CAN BE LETHAL IF TOUCHED!

**Background:** The Unidrive Size 5 drive employs a dual thermistor assembly to detect the temperatures of the lower heatsink and an adjacent buss bar located in front of the IGBT’s. Two separate thermistors are combined into one harness and routed together. The assembly runs between the IN95 PCB and the IGBT/buss bar. One thermistor is connected to the IGBT mounting bolt and the other is attached to the buss bar. They are mounted in close proximity to each other and must be replaced as a pair. If at any time the heatsink becomes too hot or the thermistor fails the drive will generate an Ot HS n trip on the display of the control pod. ($O_t\ H_S\ n$) $O_t$ = over temperature, $H_S$ = heatsink, and $n$ = power module number for multi module systems. Parameters 7.04 and 7.05 no longer indicate temperature since the Ot HSn trip is strictly a trip circuit and not an analog output. As a result, #7.04 will always indicate 0. Parameter #7.05 will indicate a value but will not change with any temperature changes.

**Problem:** Over temperature trips ($O_t\ H_S\ n$) on UNI 5 power modules cannot be differentiated between a properly operating thermistor and a defective one.

**Solution:** By measuring the DC voltage or resistance across each thermistor, the technician can readily tell if there is a true over temperature condition and/or a defective thermistor.
Procedure for Power Off Testing: Figure 1 shows the location of the dual thermistor connection on the IN95 PCB. Figure 2 details where each thermistor is wired on the connector. With the drive off, measure the resistance across each combination. If the thermistor is attached to the IN95 PCB and the drive is at room temperature you will read between 5K and 6K Ohms. The thermistor disconnected from the IN95 will read 10-12K Ohms at room temperature. An open or short reading is a bad thermistor.

Procedure for Power On Testing: Figure 1 shows the location of the dual thermistor connection on the IN95 PCB. Figure 2 details where each thermistor is wired on the connector. With the drive on, measure the DC voltage across each combination. If a thermistor is open, the voltmeter will read nearly 5.00 VDC. If the thermistor is sensing a true over temperature condition due to an inoperative cooling fan or some restriction in the airflow through the module’s heatsink then the voltmeter will read approximately 1.00 VDC. The over temperature trip will not reset until the voltage rises above 1.20 VDC.