Q-Switch Percent Power Test

Purpose

This bulletin describes how to perform a Q-switch Percent Power Test.

Scope

This bulletin applies to the 4U eDrive Nitro.

Safety Requirements

ESD CAUTION Handle appropriately.

Tools and Equipment

- Voltmeter
- Phillips® Screwdriver

Procedure

Remove the Top Cover

1. Power down the eDrive and unplug from power source.

2. Remove the ten screws from top of cover using a Phillips® screwdriver.

3. Remove twelve (six on each side) screws from the side of the top cover.

4. Gently lift the cover off of the top of the driver and set aside.

5. Locate the RF Driver.

RF Driver or Electronics Determination

1. Controls from the Front Panel to the System Controller (SC) to the Expansion Module (EM) microprocessor are communicated through serial interface. If any of the Q-switch commands work, the serial communication is functioning normally.

2. The Q-switch percent power command from the EM microprocessor goes to a buffer amp (EM **U8**) and then from EM **J15 pin 23** to the RF Driver 25-pin D-connector **Pin 12**. Before testing, disconnect and reconnect the connectors from the RF Driver to the EM.

3. Non-functioning Q-switch percent power is an uncommon error. Without troubleshooting, it is difficult to determine if the problem is more likely to be the EM or the RF Driver. To determine if it is the RF Driver or the electronics disabling the Q-switch percent power function, measure the voltage at the RF Driver **Pin 12** as shown in **Figure 1**. Attach the negative lead from the voltmeter to chassis ground.

Figure 1: Pin 12 Location

   a. At 12 kHz and 100% power the voltage will be close to 0.

   b. At 12 kHz and 50% power the DC voltage level at RF Driver **Pin 12** should be ~2.9 VDC.

4. If the analog input at the RF Driver changes when the Q-switch percent power is changed, but the percent power is not working, the RF Driver should be replaced.

5. If the DC voltage does not change when the Q-switch percent power is changed, there is a problem with the electronics. Replace the EM.

NOTE: Q-switch calibration is stored in the EM. Typically, the RF percent power is calibrated when the circuit card is first programmed and does not need to be recalibrated. If the EM is reprogrammed, do not erase the memory or the RF percent power calibration will be lost.