NORTHROP GRUMMAN

Cutting Edge Optronics

SERVICE BULLETIN	
Note No.	SVC-FSB-0014
Release Date	9/18/2017
Contact	ngceoservice@ngc.com

eDrive System Controller Firmware Programming Instructions

1. Summary

This technical note describes the programming procedure for the eDrive System Controller (SC) firmware.

2. Background

The eDrive is a multi-processor design and relies on the proper interactions of these processors and programmable logic devices to insure correct operation. The primary processor in the system resides on the SC. Many changes in the operation of the eDrive require a change only to the SC firmware.

3. Parts and Equipment Required

The procedure requires the following parts, equipment, and resources:

- A PC running Windows XP or later with COM port or USB port

- A standard 9-pin M-F serial cable such as Assmann AK131-2-R available from Digikey (http://assmann.us/specs/ak131-2-r.pdf)
  -or-
  A USB-to-serial cable: CEO part number 58-188-10-200, or a commercial equivalent like Unitek Y-105 cable.

- pyTINI loading software from NG CEO

- The prescribed SC firmware loading file from NG CEO

Contact NG CEO for assistance in obtaining any of these items.

4. Programming Instructions

1. Copy the two files to your computer.

2. Connect the serial cable to the serial connector on the PC.

3. Connect the serial cable to the eDrive connector, **RS-232 CH2**.

4. Be sure the PC and eDrive are both powered on and ready.

5. Run the pyTINI software. The pyTINI user interface appears with the message "Please configure serial port."

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6. Select **Setup | Config Serial Port**.

7. A **Select serial port** pop-up window will appear. Select the PC serial port that the serial cable was connected to and click the **OK** button.

8. A confirmation message and copyright banner will appear in the user interface with a ">" prompt.

9. **Select File | Send File.**

10. A **Select a file** pop-up window will appear. Browse to the "SC_x.y.z.hex" and click the **Open** button.

11. The loading procedure will begin.

12. Wait for several minutes until the loading process is complete.

13. Perform the *Clearing the Memory* instructions below and then continue here.

14. Close PyTINI software.

15. Turn the eDrive off and remove the cable from the eDrive.

16. Turn the eDrive back on. Note that the version displayed on the eDrive matches the version x.y.z from the loaded file.

5. Clearing the Memory

1. Connect the serial cable to the eDrive connector, **RS-232 CH2**.

2. Run the pyTINI software.

3. Select **Setup > Config Serial Port**. Command prompt should appear.

   a. Enter "B0" <enter>

   b. Enter "F00" <enter>

   c. Enter "B1" <enter>.

   d. Enter "F00" <enter>

   e. Enter "B2" <enter>.

   f. Enter "F00" <enter>

   g. Enter "B3" <enter>.

   h. Enter "F00" <enter>

   i. Enter "B4" <enter>.

   j. Enter "F00" <enter>

   k. Enter "B5" <enter>.

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l. Enter "F00" <enter>

m. Enter "B6" <enter>.

n. Enter "F00" <enter>

o. Enter "B7" <enter>.

p. Enter "F00" <enter>

q. Enter "B20" <enter>.

r. Enter "F00" <enter>

s. Enter "B21" <enter>.

t. Enter "F00" <enter>

u. Enter "B22" <enter>.

v. Enter "F00" <enter>

w. Enter "B23" <enter>.

x. Enter "F00" <enter>

y. Enter "B24" <enter>.

z. Enter "F00" <enter>

aa. Enter "B25" <enter>.

bb. Enter "F00" <enter>

cc. Enter "B26" <enter>.

dd. Enter "F00" <enter>

ee. Enter "B27" <enter>.

ff. Enter "F00" <enter>

gg. Power down the eDrive and power up.