NXIC Firmware Version 4.5 Update Procedure

PURPOSE

NXIC Version 4.5 includes the following updates:

- Reconstruct flash memory bad block table to avoid writing and reading data from bad memory blocks.
- Update cell geometry pressure correction terms.

OVERVIEW

This procedure has the user install firmware version 4.5 as is normally done with TRDI's firmware programming software, Pic18Ld. The procedure continues by having the user enter several commands in CTDPro's terminal window. This procedure should be followed precisely in the order presented.

APPLICATION

This firmware is for NXIC Series Products with firmware version 3.0 or later. If you currently have a firmware version earlier than version 3.0 or if you have any questions regarding applicability of the update to you equipment, contact TRDI for Customer Service at rdifs@teledyne.com.

FIRMWARE UPDATE PROCEDURE

1. Make sure you have downloaded any important data files from the NXIC instrument, as the procedure to reconstruct the bad memory block table will erase all data files. Note that the calibration parameters will not be affected.
2. Determine what firmware version your NXIC unit is currently running by opening the terminal window in CTDPro by following the pull-down menu **View>Terminal**. Enter Open mode ******O <ENTER>***, and type ***VER <ENTER>***, as shown in the screen shot below. If you currently have a firmware version earlier than version 3.0, please contact TRDI for Customer Service at rdifs@teledyne.com.

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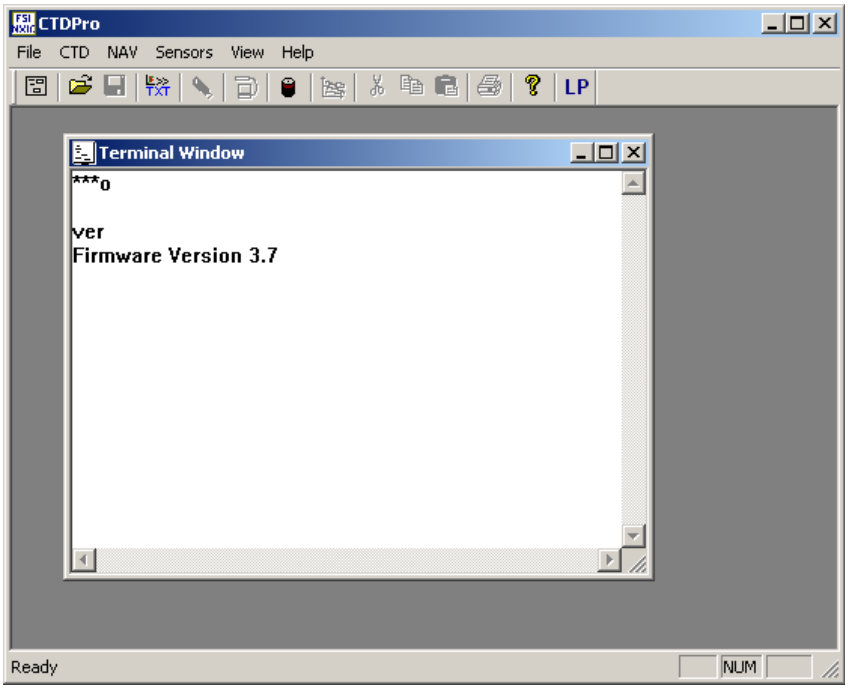
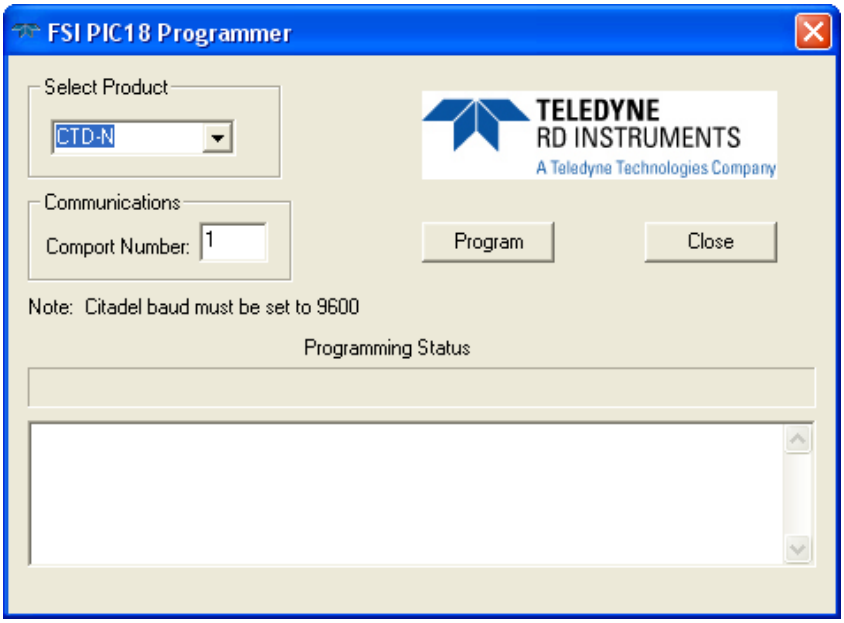


3. Copy PK18.zip to your desktop from the TRDI's web site which can be accessed at http://www.rdinstruments.com/cc_software.aspx.
4. Create a folder named 'Pic18Ld' on your desktop and unzip all of the contents of PK18.zip into this folder. You can download a trial version of WinZip from the following web site: http://winzip.com/prod_down.htm
5. Set the baud rate of the NXIC to 9600 baud by using CTDPro's pull-down menu. With a NXIC-CTD product, set the baud rate to 9600 by following the pull-down menu **CTD>Communications>Settings**. With a NXIC-CT product, set the baud rate to 9600 by following the pull-down menu **CTD>Communications>Baud Rate**.
6. Run, Pic18Ld.exe, from the folder named 'Pic18Ld'. The following window should open.



7. Set 'Select Product' to 'CTD-N' and select the comport that your NXIC is connected to.
8. Click on the 'Program' button and wait until the 'programming status' meter is full (this takes roughly 5 minutes).
9. A window that reads 'Programming complete' will pop up. Click 'OK' on this window and then click on the 'close' button on the TRDI PIC18 Programmer window
10. Open CTDPro version 2.39
11. Open terminal window in CTDPro by following the pull-down menu **View>Terminal**.
12. Enter OPEN mode by entering the command ******O <ENTER>***.
13. Verify the new firmware version by entering the command ***VER <ENTER>.***

RECONSTRUCT BAD BLOCK TABLE

1. Enter the command ***CLBBT <ENTER>,*** which will format the flash memory's Bad Block Table
2. Enter the command ***ERALL <ENTER>***, which will erase the flash memory.
3. Enter the command ***SCBB <ENTER>,*** which will scan for bad flash memory blocks and log them to the Bad Block Table in the EEPROM memory.

NOTE: As many as 40 bad blocks is normal.

4. Enter the command ***ZMEM <ENTER>*** and answers 'Y' when prompted with "erase all files?"

ENTERING CELL GEOMETRY PRESSURE CORRECTION TERMS

The three types of NXIC conductivity cells are

- Potted NXIC-BIO cells
- Mechanical oil-filled cells
- Mechanical non-oil filled shallow cells

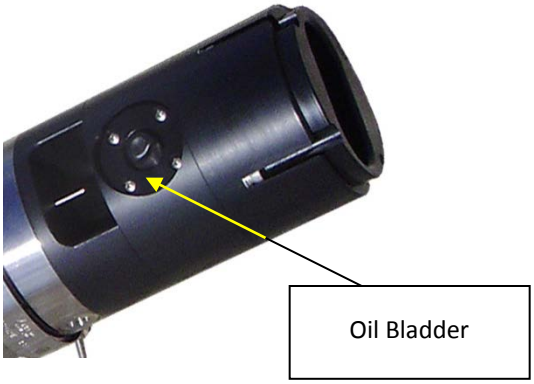
The procedure for entering the cell geometry pressure correction terms differs depending on the cell type. The procedure for each cell type is presented below. Choose the procedure that matches the cell type of the instrument and follow it alone.

PROCEDURE FOR POTTED NXIC-BIO CELLS

Cell Type A: Potted NXIC-BIO cell

1. Set the Cell terms for the Bio Cells as follows
2. Go to OPEN mode by entering the command ******O <ENTER>***
3. Type ***beta = -2.4e-6 <ENTER>***
4. Type ***beta <ENTER>***
5. Verify the response is beta = **-2.4e-6**. The actual number may be slightly different such as **-2.3999999e-6**. This is normal.
6. To store the new terms type ******e <ENTER>***

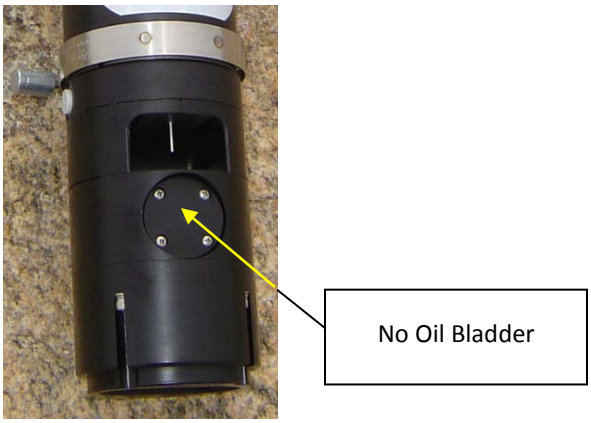
PROCEDURE FOR MECHANICAL OIL-FILLED CELLS



Cell Type B: Mechanical oil-filled cell

1. Set the Cell terms for the Oil Filled Cells as follows
2. Go to OPEN mode by entering the command ******O <ENTER>***
3. Type ***beta = 3.8e-7 <ENTER>***
4. Type ***beta <ENTER>***
5. Verify the response is beta = **3.8e-7**. The actual number may be slightly different such as **3.799999e-7**. This is normal.
6. To store the new terms type ******e <ENTER>***

PROCEDURE FOR MECHANICAL NON-OIL-FILLED CELLS



Cell Type C: Mechanical non-oil filled shallow cell

1. Set the Cell terms for the Mechanical non-oil-filled cell

2. Go to OPEN mode by entering the command ******O***
3. Type ***beta = -1.31e-5 <ENTER>***
4. Type ***beta2 = 5.8e-9 <ENTER>***
5. Type ***beta <ENTER>***
6. Verify the response is beta = **-1.31e-5**.
7. Type ***beta2 <ENTER>***
8. Verify the response is beta = **5.8e-9**. The actual number may be slightly different such as **5.799999e-9**. This is normal.
9. To store the new terms type ******e <ENTER>***

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