

Pyramid Technical Consultants, Inc.
1050 Waltham Street Suite 200
Lexington, MA 02421

TEL: (781) 402-1700 ♦ FAX: (781) 402-1750 ♦ EMAIL: SUPPORT@PTCUSA.COM

Recommended I404 Firmware Update

Authors
J.Gordon

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1 Background

The response of photodiodes used in quad BPM sensors is not necessarily perfectly balanced. As a result, a perfectly centred beam will not read out at position 0,0. Similarly, an even illumination of all the sensors will not read out at position 0,0.

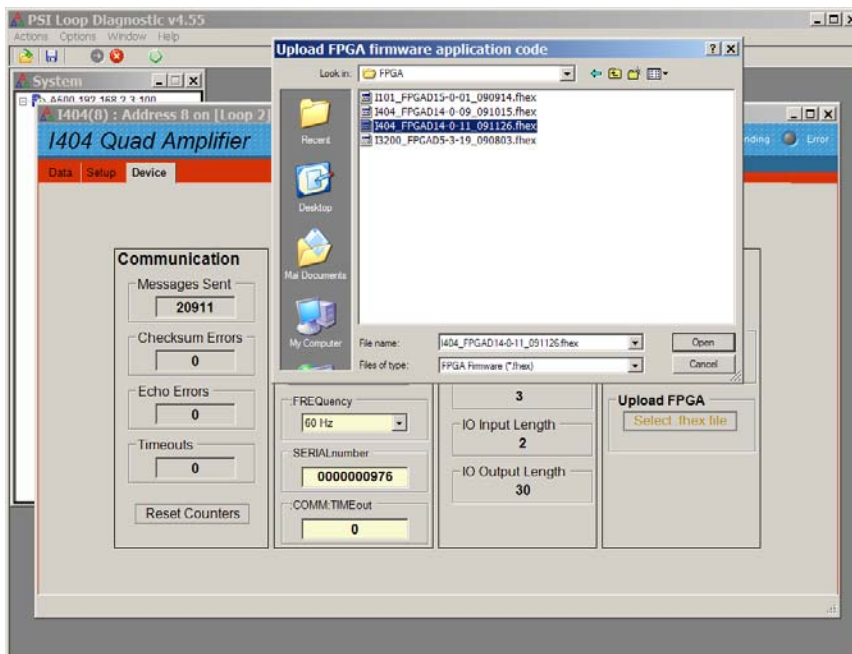
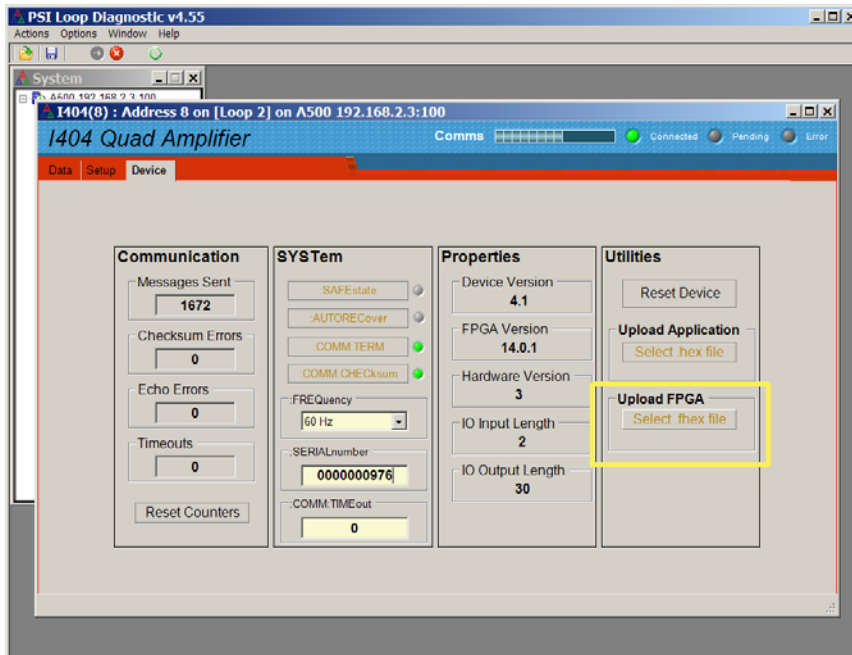
PTC has made changes to the I404 software, to add factors which allow the user to compensate for non-equal diode response. The new function is described in an update of the I404 user manual, I404_UM_091202.pdf, which can be downloaded from <http://www.ptcusa.com/products.shtml>.

2 Update procedure

Three software components are required for a field upgrade, all of which are available for download at http://www.ptcusa.com/PTC_Downloads.html.

The process is as follows:

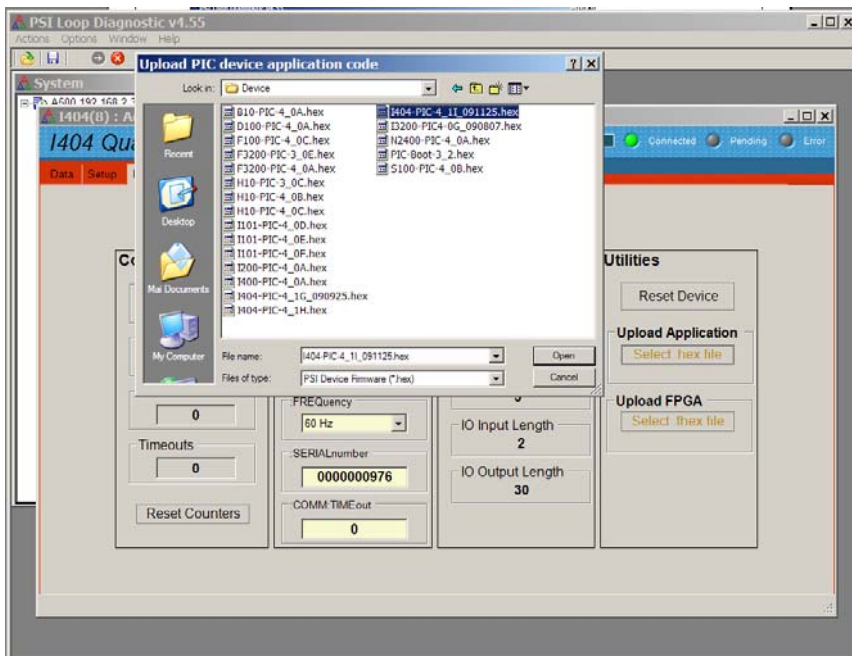
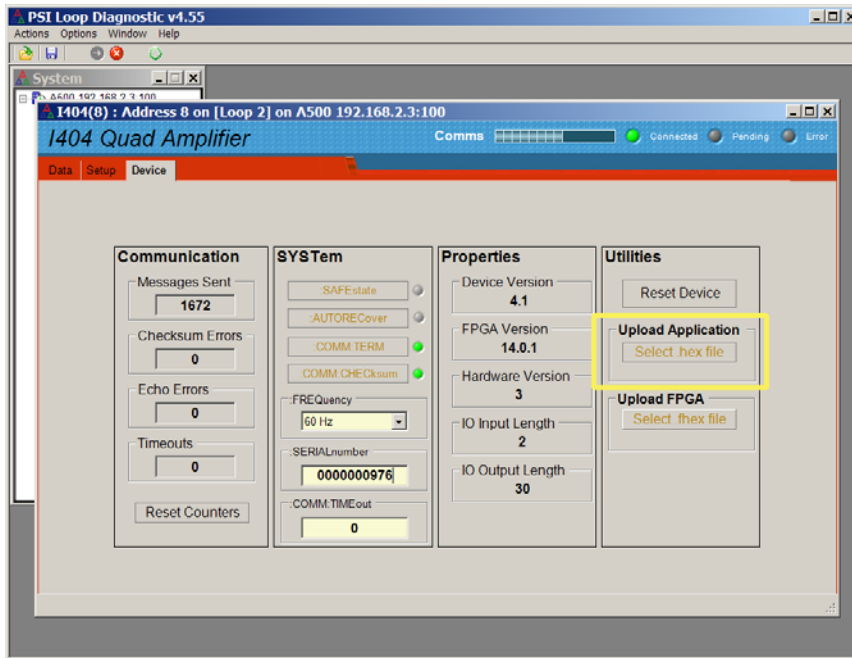
- 1) Download the updated PSI Diagnostic host installer for version 4.55 from the web site.
- 2) Run the .msi file on a Windows PC to install the PSI Diagnostic.
- 3) Get the uploadable FPGA code file I404_FPGAD14-0-11_091126.fhex and the uploadable application code file I404_PIC-4_11_091125.hex from the web site and save them to a convenient location on the PC.
- 4) Run the PSI Diagnostic and connect to the I404.
- 5) On the Device tab, click the Upload FPGA button and navigate to the FPGA code file.



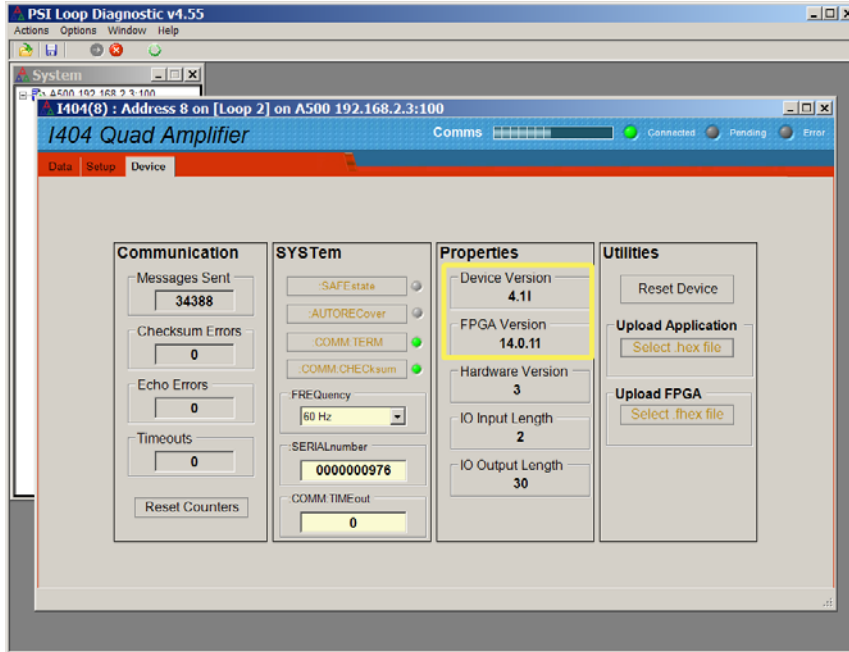
Let the upload complete. Do not turn off the power or the PC while the upload is in process.

6) Power cycle the I404 to activate the new FPGA code. It should reconnect automatically to the PSI Diagnostic when it has powered up.

7) On the Device tab, click the Upload Application button and navigate to the application code file.



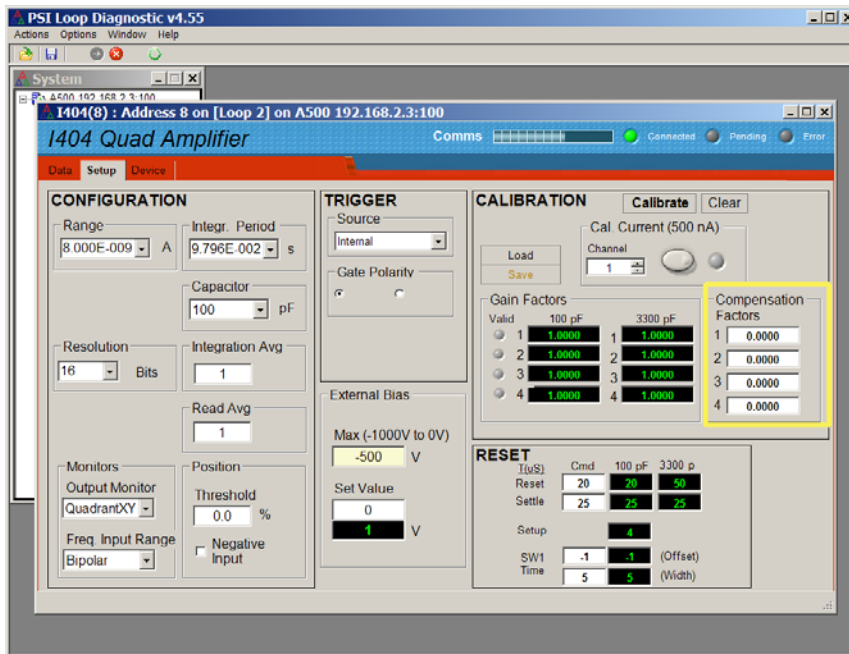
Let the upload complete. The I404 will start the new code automatically. You should see the new version numbers on the Device tab.



This completes the code update.

3 New controls

The entry fields for the new compensation factors are on the Setup tab.



The corresponding new ASCII command is CALIB:COMP k_A k_B k_C k_D . See the I404 user manual for full details.

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