InertiaCube4 Firmware Upgrade Procedure

Overview

Thank you for your purchase of an InertiaCube4. This InertiaCube4 features field-upgradable firmware to enable additional features and performance enhancements. The firmware can be easily upgraded using the DeviceTool2 software program. This document provides information on upgrading the InertiaCube4 firmware.

Supported Devices

Version 5 firmware is supported on the following InertiaCube 4 device models:

- 100-IC400-0USB
- 100-IC400-0000
- 100-IMUBT-0401
- 100-IMUBT-KMN1

New Features / Change Log

Version 5 (released 2014-12-09):

- AHRS functionality enabled – provides up to 200 Hz yaw/pitch/roll *without* requiring a host PC
  - See new Interface Control Document (ICD) for details
  - Latest DLL supports a pass-through mode for easy testing of AHRS data in existing apps
- Improved Bluetooth connectivity when using the latest InterSense DLL (for BT sensors)
  - Helps prevent sensors from disconnecting/becoming unresponsive when temporarily moving out of range or in cases of significant interference
- Ability to access raw sensor information (gyro, accel, mag, voltage and temperature data) directly via serial/USB/Bluetooth using the protocol described in the ICD, at rates up to 1000 Hz

Instructions

Download version 5 firmware file from the website (www.intersense.com/firmware) and expand the IC4 firmware ZIP file. The full upgrade process normally takes between 1 and 3 minutes depending on the device. These procedures must be performed on a Windows system. After the upgrade the InertiaCube4 will continue to operate on Windows, Mac OS X and Linux operating systems.

Thales Visionix, Inc.
700 Technology Park Drive, Suite 102 | Billerica, MA 01821
Phone: +1 781 541 7624
Email: techsupport@intersense.com
Website: www.intersense.com | www.thalesvisionix.com

InertiaCube4 Firmware Upgrade Procedure

IMPORTANT: Although the InertiaCube4 is designed to allow recovery from a failed firmware upgrade, to minimize the chance of an interruption, please ensure:

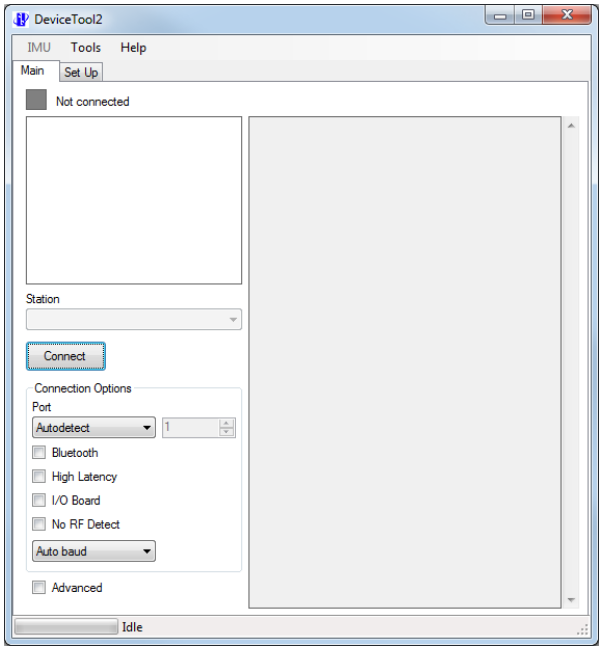
- Battery is fully charged for Bluetooth InertiaCube4 devices
- "Bluetooth" checkbox is checked if you have a Bluetooth sensor
- Cables are securely attached and not unplugged during the upgrade
- No other applications are using the sensor (this will prevent *DeviceTool2* from connecting to the sensor to perform the upgrade)

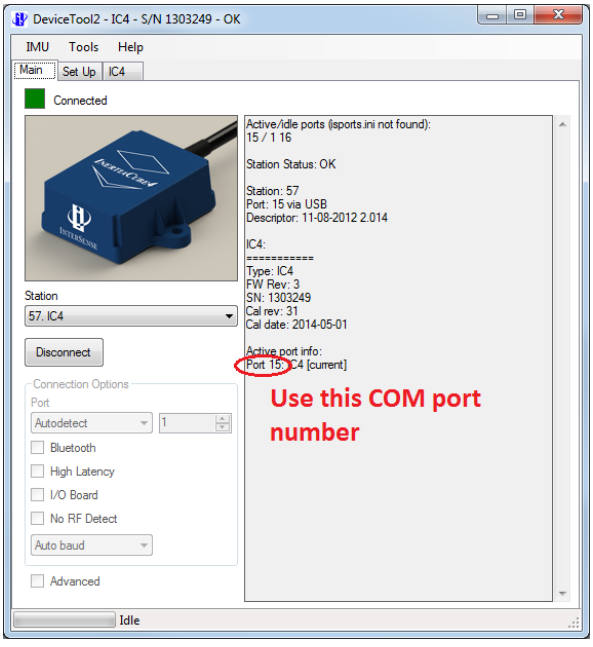
Step 1

Press the Connect button to determine which COM port your sensor is connected to. If you know the COM port, please select **Use selected port** from the "Port" dropdown menu and enter the COM port number to the right.

IMPORTANT: For Bluetooth sensors only, we recommend getting COM port information directly from the operating system, as "Autodetect" will be slow and only detect up through COM32.

- Click on the Bluetooth icon in the system tray and find out which COM port is in use for the sensor. If there are multiple COM ports listed, the "outgoing" COM port is the correct one.





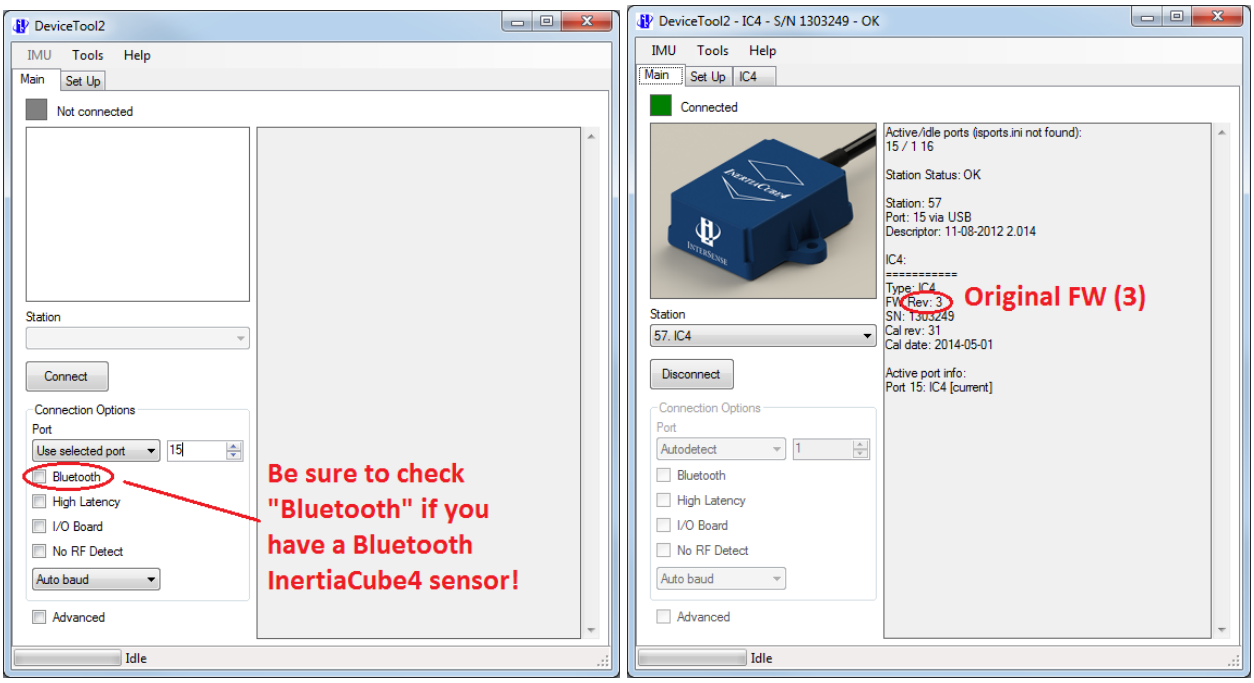
Thales Visionix, Inc.
700 Technology Park Drive, Suite 102 | Billerica, MA 01821
Phone: +1 781 541 7624
Email: techsupport@intersense.com
Website: www.intersense.com | www.thalesvisionix.com

InertiaCube4 Firmware Upgrade Procedure

Step 2

If you initially chose the **Autodetect** option (default), press **Disconnect** and select **Use selected port** from the "Port" dropdown menu and enter the COM port number to the right. Then press **Connect** if desired (this is optional). It should display information about your sensor.

IMPORTANT: For Bluetooth devices, be sure to click the "Bluetooth" checkbox, otherwise the upgrade will most likely fail (though it may partially proceed, depending on connection quality and external 2.4 GHz interference).



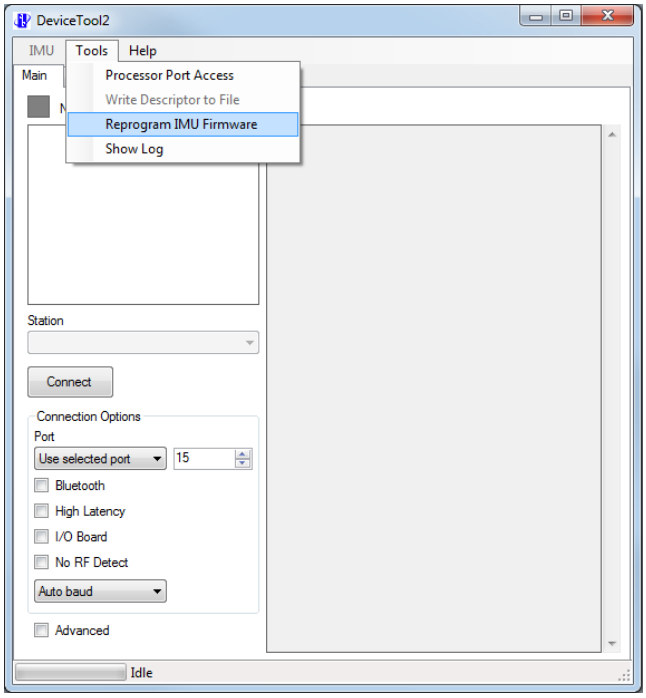
Thales Visionix, Inc.
700 Technology Park Drive, Suite 102 | Billerica, MA 01821
Phone: +1 781 541 7624
Email: techsupport@intersense.com
Website: www.intersense.com | www.thalesvisionix.com

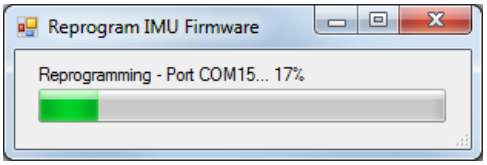
InertiaCube4 Firmware Upgrade Procedure

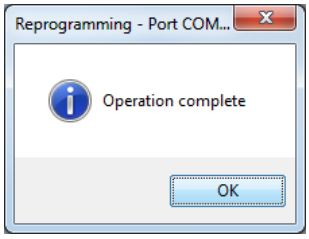
Step 3

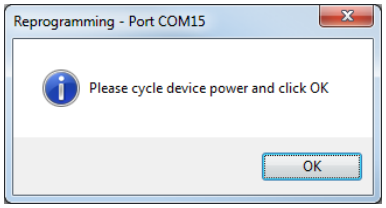
Choose **Tools > Reprogram IMU Firmware** (if you forgot to choose **Use selected port** from the dropdown menu, a dialog will prompt you to do so). Select the v5 firmware upgrade file (*V14335-12-01_A__IC4_FW_Ver05_05_13_2014_1520.isf*) and press **Open**.

The firmware upgrade should proceed and prompt to power cycle the device after completion; please do so (power cycle Bluetooth sensors, unplug and reconnect cable for USB sensors, and unplug/replug cable or power adapter for RS232 serial sensors).







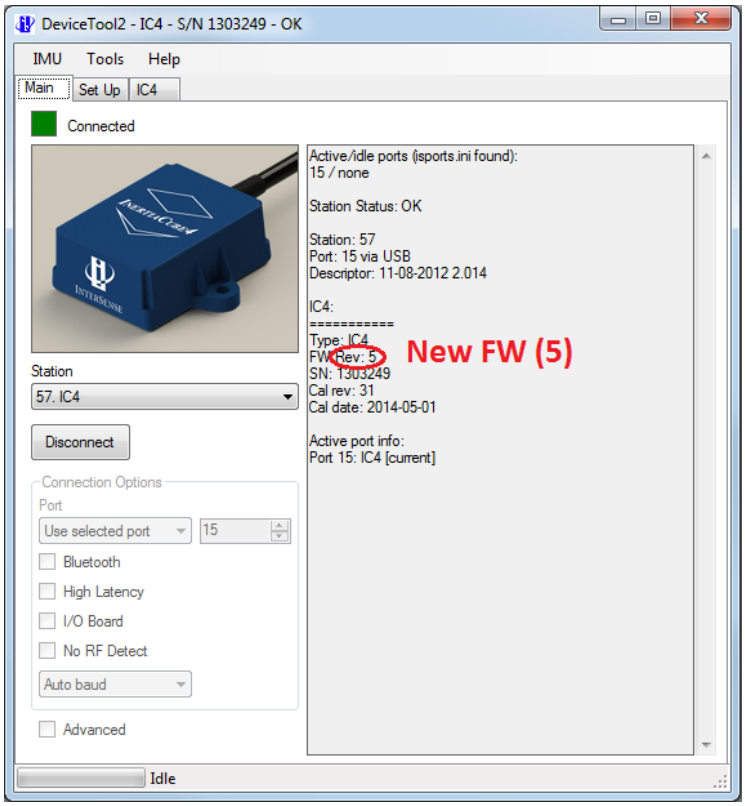


Thales Visionix, Inc.
700 Technology Park Drive, Suite 102 | Billerica, MA 01821
Phone: +1 781 541 7624
Email: techsupport@intersense.com
Website: www.intersense.com | www.thalesvisionix.com

InertiaCube4 Firmware Upgrade Procedure

Step 4

Verify that the firmware has been upgraded to version 5. The firmware upgrade is now complete (note that if you want to use the sensor with *ISDemo*, *IServer*, etc., you will need to **Disconnect** from the sensor in *DeviceTool2* first).



Thales Visionix, Inc.
700 Technology Park Drive, Suite 102 | Billerica, MA 01821
Phone: +1 781 541 7624
Email: techsupport@intersense.com
Website: www.intersense.com | www.thalesvisionix.com

InertiaCube4 Firmware Upgrade Procedure

Troubleshooting and FAQ

Problem	Solution
Unable to connect to the sensor in *DeviceTool2*	For Bluetooth sensors, be sure to select the "Bluetooth" checkbox, and that you are using the outgoing COM port if multiple COM ports are selected. If the sensor has been used on another PC recently, remove and re-pair it (if a code is required, use 1234). Make sure that all other programs, such as *ISDemo*, *IServer*, and any custom programs using **isense.dll** are not running (check the system tray). Ports higher than COM32 need to be specified manually (you can check the Windows *Device Manager* program to verify that the port exists and is numbered correctly under **Ports (COM & LPT)**. If you are still having difficulty, please contact InterSense Product Line Technical Support (techsupport@intersense.com).
Firmware upgrade failed due to loss of power or connection issue during upgrade and sensor will no longer connect	First, attempt to perform the upgrade again (reconnect the sensor if the cable was pulled out), which will often resolve the issue. If that fails, it is possible to perform a recovery by choosing **Tools > Reprogram IMU Firmware** and clicking **OK**, then reconnecting the sensor. If upgrading a Bluetooth device, try placing it closer to the Bluetooth transceiver, and ensure that the "Bluetooth" checkbox in *DeviceTool2* is checked. It is possible to perform multiple upgrades, so it may also be attempted several times in the event of connection issues during the upgrade.

Can the InertiaCube4 be downgraded?	It is possible to downgrade the sensors to their initial version (downgrades to previous versions will likely work, but is not supported); however we recommend using the latest firmware.
Does the latest firmware work with previous software, and vice versa?	If using the latest firmware, you must use the corresponding latest software (most notably the DLL). The latest software/DLL supports both the latest and all previous versions of the firmware.

Contact Support

If you experience problems with the upgrade or if you have any questions, please contact support.

General technical support email:
techsupport@intersense.com

Direct telephone:
+1 781 541 7624