ACE-G3

Firmware Programming Using USBHIDBootloader

Manual
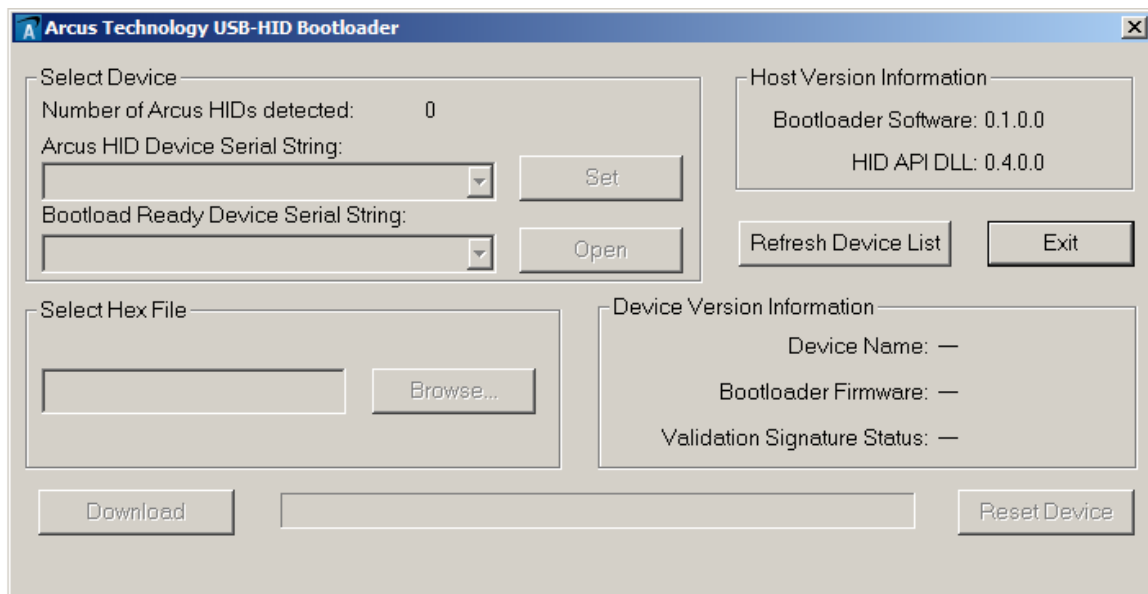
Revision History:
      1.0 – First Revision

Table of Contents

1. Introduction

ACE-G3 is a 3-axis motion controller with USB communication that supports the commonly used G-code and M-code language.

ACE-G3 uses HID Device Class for USB communication and does not require a special USB driver installation. HID is supported by all major operating systems such as Windows, Linux, and Mac, and enables immediate use of ACE-G3.

ACE-G3 supports streaming of the G-code and M-code commands from host PC through USB communication. The streamed commands are buffered in 1K lines of buffer space so that G-code can be continuously streamed from the host PC through USB to ACE-G3 for continuous motion.

Linear interpolation motion is supported on XYZ axes. Arc/circular interpolation is supported on XY axes. Limit and home switches are available each axis as well as general purpose 3 digital inputs and 4 digital outputs and encoder inputs for XYZ axes. Additional pulse/direction output signals are available for controlling the spindle.

ACE-G3 comes with Windows program to easily test all the features of the controller. Sample source codes are available for customizing the software for various applications.

2. Programming via USB Communication

2.1 Can I perform the upgrade?

See the checklist below to see whether or not your desired firmware upgrade is capable via USB. If any one of these items is not satisfied, you will need to send the unit to Arcus for in-house programming.

- ✓ One of the product's communication interfaces is USB.
- ✓ The last two digits in the current firmware version number are "BL". To get the current firmware version, connect to the device from a PC and send the **M291** (Get Firmware Version) command from the ACE-G3-Win software.
- ✓ The last two digits in the new firmware version number are "BL".

2.2 Bootloader Software

With the ACE-G3 installed and connected to your PC, open the "SOFT-EXE-BOOTLOAD-HID-XXX.exe" application. Make sure that there are no other Arcus USB devices connected to your PC. If you did not properly connect the ACE-G3 to the PC or the ACE-G3 software is currently running, the "Arcus HID Device Serial String:" dropdown menu will be disabled.

2.2.1 Bootload Mode

If your device is not in bootload mode, the "Arcus HID Device Serial String:" selection box will be enabled. Click **Set**. A popup window will appear notifying you if the device has been successfully put in bootload mode. Click **OK**. If your device is already in bootload mode, the screen will have the appearance of Figure 1.1 instead. Once the device has been set to bootload mode, a firmware file MUST be uploaded. Otherwise, the device will not leave this state.
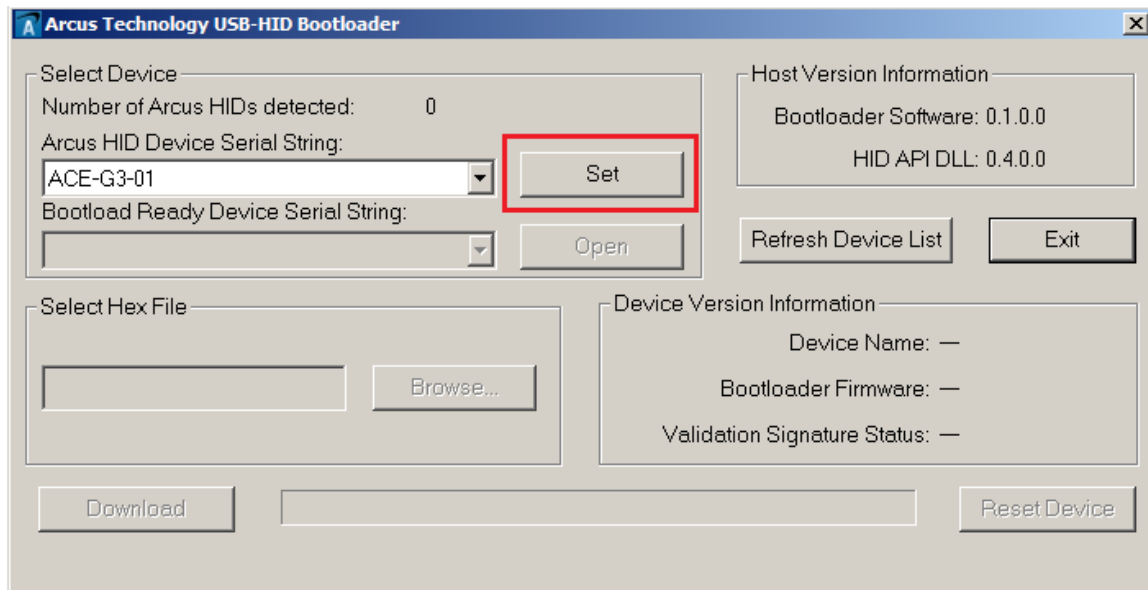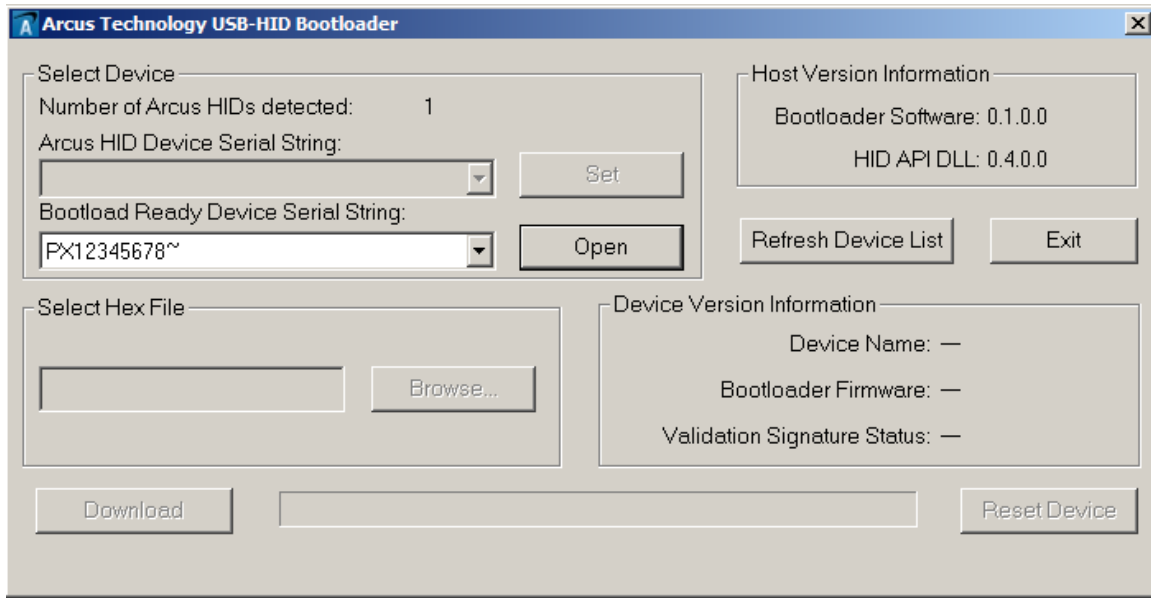

Figure 1.0

Figure 1.1

2.2.2 Downloading Software

1. Open the bootload connection. When in bootload mode, the device name will always be "PX12345678~".
2. Browse for the new firmware file (.hex).
3. Download the new file (.hex).
4. After the new firmware is downloaded, reset the device.
5. Exit the program when done.

Figure 2

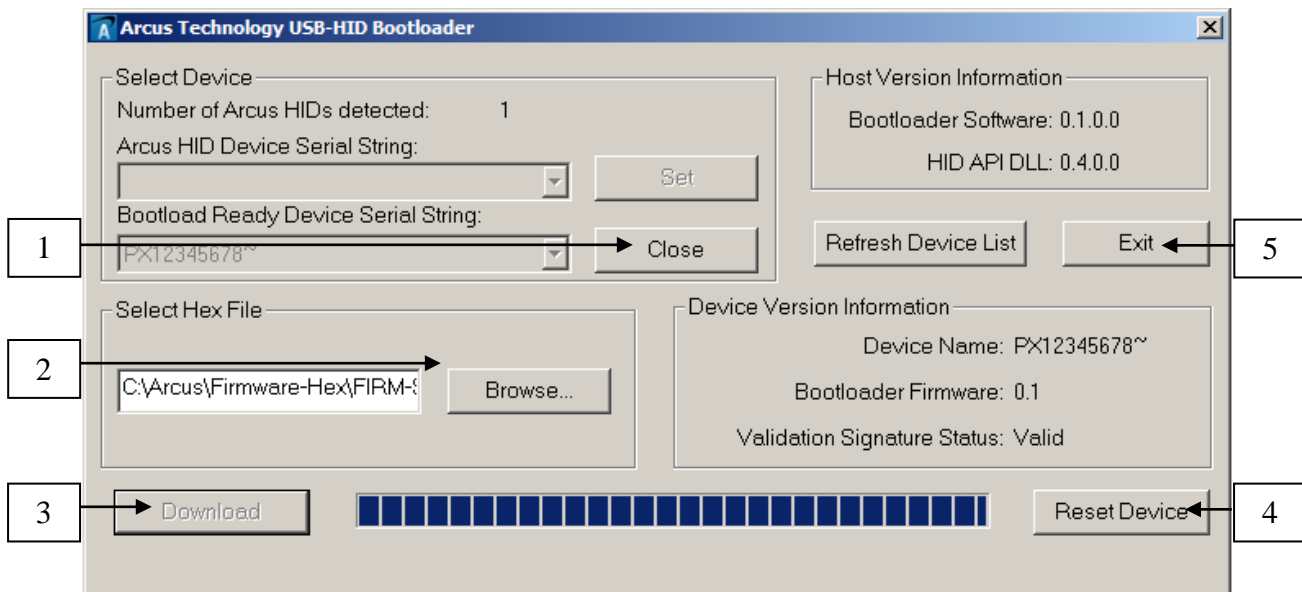## Contact Information

Arcus Technology, Inc.

3159 Independence Dr.
Livermore, CA 94551
925-373-8800

www.arcus-technology.com