Application Note

Updating the TED4015 Thermoelectric Temperature Controller to Firmware Version 2.x.x

Version: 1.0
Date: Apr. 15, 2010

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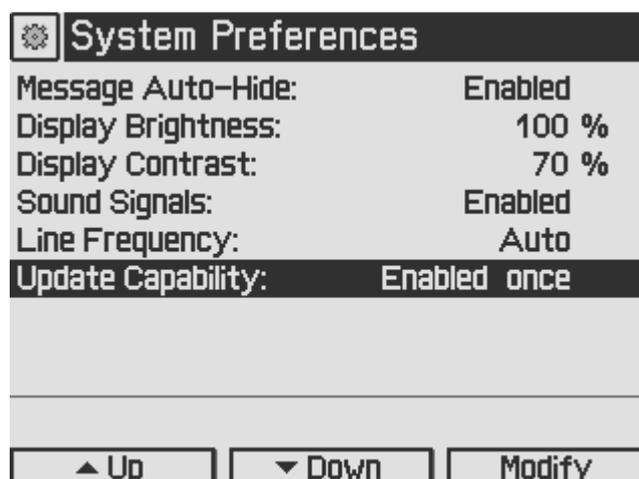
1 Scope of this document

This document is intended for users who want to upgrade their TED4015 Thermoelectric Temperature Controller with firmware level 1.3.0 or below to firmware level 2.x.x. The current firmware level of the instrument is displayed when powering on the TED4015, alternatively it is displayed in the instrument's *System Information* menu.
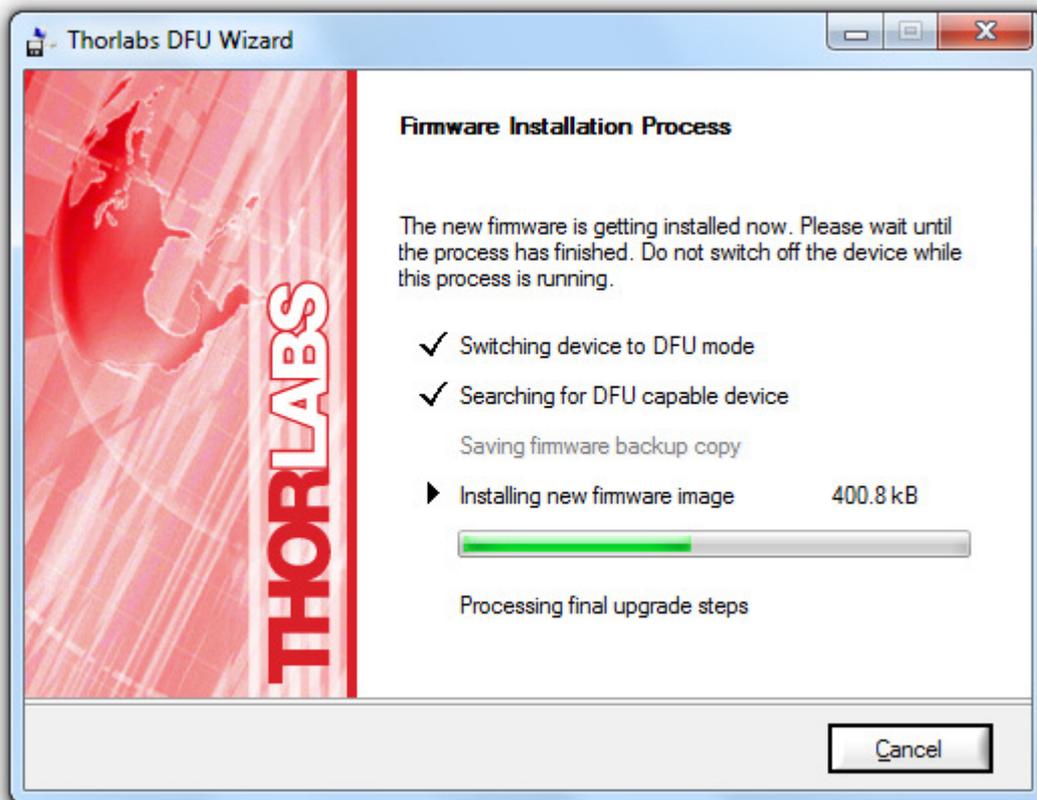
2 Updating the device firmware

Firmware upgrades can be done by the user via the USB interface. The latest firmware can be downloaded from the Thorlabs web site www.thorlabs.com.

An additional tool is necessary in order to transfer the new firmware image to the instrument. The *DFU Wizard* tool may be found on the distribution data carrier that came with the instrument or may be downloaded from the Thorlabs web site www.thorlabs.com. Switch off the instrument or disconnect it from the USB and install the *DFU Wizard* and follow the instructions during the installation process.

The TED4015 must be configured to accept firmware upgrades. Therefore enable the instrument's *Update Capability* in the *System Preferences* menu to *Enable Once* (or alternatively *Enable*). The *Enable Once* setting will be reset to *Disable* the next power on.

Connect the TED4015 to an USB port of your computer and switch the unit on. Your PC now recognizes a *DFU capable device*, please allow installing. Launch the *DFU Wizard* from the start menu under *Programs►Thorlabs►*Device Firmware *Upgrade Wizard►DFU Wizard* and follow the step-by-step instructions.

For more information about updating the device firmware please also refer to your instrument's user's manual.

3 Changes of the front panel user interface

The TED4015 instrument's front panel user interface has been improved in firmware version 2.0.0 and higher. The user can now choose from different measurement screens showing different readings and set values. The instrument's menu structure also has been improved.

For details of the front panel user interface in firmware version 2.0.0 and higher please see the current *TED4000 Series Temperature Controller Operation Manual* which is available from the Thorlabs web site (www.thorlabs.com).

4 Changes of the SCPI command set

The TED4015 SCPI command set has been modified for compatibility purposes with the other members of the 4000 series.

- The `SOURce[1]:TEMPerature:PROTection` command group and all of its members has been moved to the `SENSe[1]:TEMPerature:PROTection` command group.

- The `SYSTem:LFRequency` command group has been added to the command set for compatibility reasons with the other members of the 4000 series instruments.

- The `OUTPut[1]:PROTection:CABLe:TRIPped?` , `OUTPut[1]:PROTection:TRANsducer:TRIPped?` and `OUTPut[1]:PROTection:OTEMp:TRIPped?` queries has been added.

- The `FETCh:` command group has been added. This command group enables the user to simultaneously query multiple readings that are taken at the same time.

The TED4015 SCPI command set in firmware version 2.0.0 and higher is described in detail in the *Series 4000 SCPI Programmers Reference Manual* which is available from the Thorlabs web site (www.thorlabs.com).

5 VXIpnp instrument driver

The *TED4000 VXIpnp VISA instrument driver* is replaced by the *TL4000 VXIpnp instrument driver* which also contains functions and VIs for the other members of the 4000 series. The *TL4000 VXIpnp instrument driver* may be downloaded from the Thorlabs web site (www.thorlabs.com).

For a detailed description of the *TL4000 VXIpnp instrument driver* please see the *Driver Programmers Reference Manual* which is included in the drivers installation package.

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