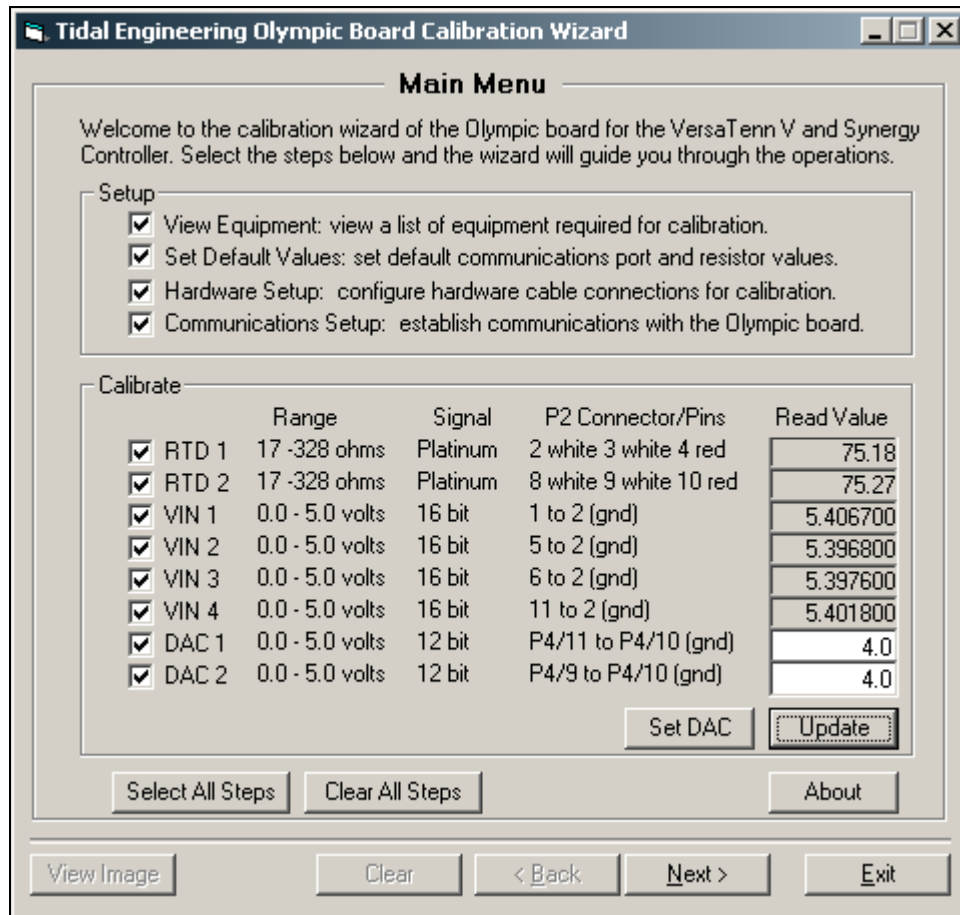


## VersaTenn V Olympic Board Calibration



Olympic Board Calibration Wizard

VersaTenn V controllers employ sensitive temperature and humidity sensors as well as analog inputs and outputs. These sensors and I/O devices are natively in volts. The VersaTenn's Olympic board converts these voltage measurements to usable values such as degrees Celsius and percent humidity. The Olympic board requires an initial calibration when first installed. This application note will give a brief overview of the wizard and will walk you through one calibration example: the RTD.

The Olympic Board Calibration Wizard is a step-by-step program designed to walk the user through the setup and calibration processes. To select the desired actions, put a check in the check box. It is recommended that you select all the actions in the Setup section on your first use. Each section is progressed through by pressing the Next button. Follow the directions on each screen then press the Next button again until you reach the final screen in a section. Press the Finish button and you will return to the Main Menu. The wizard will progress from top to bottom down the list of selected (checked) actions on the Main Menu. The wizard has context sensitive help at key sections throughout the process, rendering the product completely self-contained and self-explanatory.

The program starts at the Main Menu (see image on cover page). It is separated into two sections:

- **Setup**
- **Calibrate**

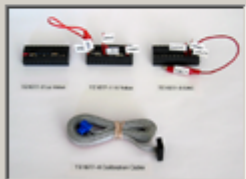
Use the **Setup** section to guide you through assembling the necessary calibration equipment, setting the default values of the calibration resistors, connecting the hardware to your PC and establishing board communications via a serial cable to a serial port on your PC. The required equipment, which you may need to provide yourself, is listed below.


- Volt meter or digital multimeter (preferably 6 digits)
- High value resistor (255 ohm nominal)
- Low value resistor (62 ohm nominal)
- Serial cable
- Gender changer for serial cable
- Voltage source 4.0/1.0 volts

Alternatively you may purchase a Calibration Kit (PN TE1677) from Tidal Engineering which provides you with all the necessary equipment.

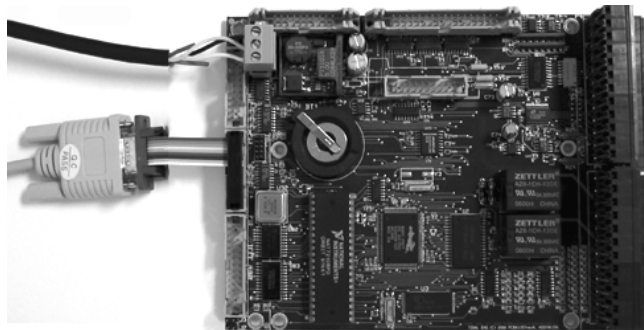
Tidal Engineering can provide a Calibration Kit (PN TE1677) that includes:

- TE1677-1, High Value Calibration Resistor Connector (255 ohm nominal)
- TE1677-2, Low Value Calibration Resistor Connector (62 ohm nominal)
- TE1677-3, DAC Calibration Connector
- TE1677-4, Calibration Cable



Steps utilizing the Calibration Kit are specified by the  icon. For purchasing contact information, press the About button on the Main Menu screen. To view a reference photo, press the View Image button. Press Next to continue.

As a visual reference the Olympic board is shown below with the serial cable attached to the appropriate connector for serial communication.



Use the **Calibrate** section on the Main Menu to calibrate the individual items. The RTD (Resistance Temperature Detector) section calibrates the Temperature inputs. The VIN (Volt Input) calibrates the inputs used for humidity and some special custom input devices. The DAC (Digital to Analog Conversion) section calibrates the Analog Retransmit outputs which can be used to run chart recorders to graph temperature and humidity data, or to drive other devices such as vibration controllers on HALT HASS chambers. Select (check) the items you want to calibrate and press the Next button. The wizard will guide you through all the necessary steps.

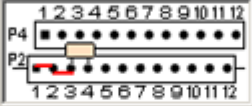
To follow is an example of a user successfully calibrating the RTD using the 8 RTD Calibrations wizard screens.



**Olympic Calibration: RTD 1**


### Step 2: Connect High Value Resistor

If you do not have a calibration kit, insert the high value (255 ohm nominal) resistor into P2 pins 3 and 4. Connect pins 2 and 3. Make sure that pin 1 is grounded to pin 2. To view a reference photo, press the View Image button. Press Next to continue.



Connect high value resistor.

**+** If you purchased a calibration kit, insert the high value reference connector now. Make sure that pin 1 is grounded to pin 2.



View Image    Cancel    < Back    Next >    Finish

**Olympic Calibration: RTD 1**

### Step 3: Capture High Reading

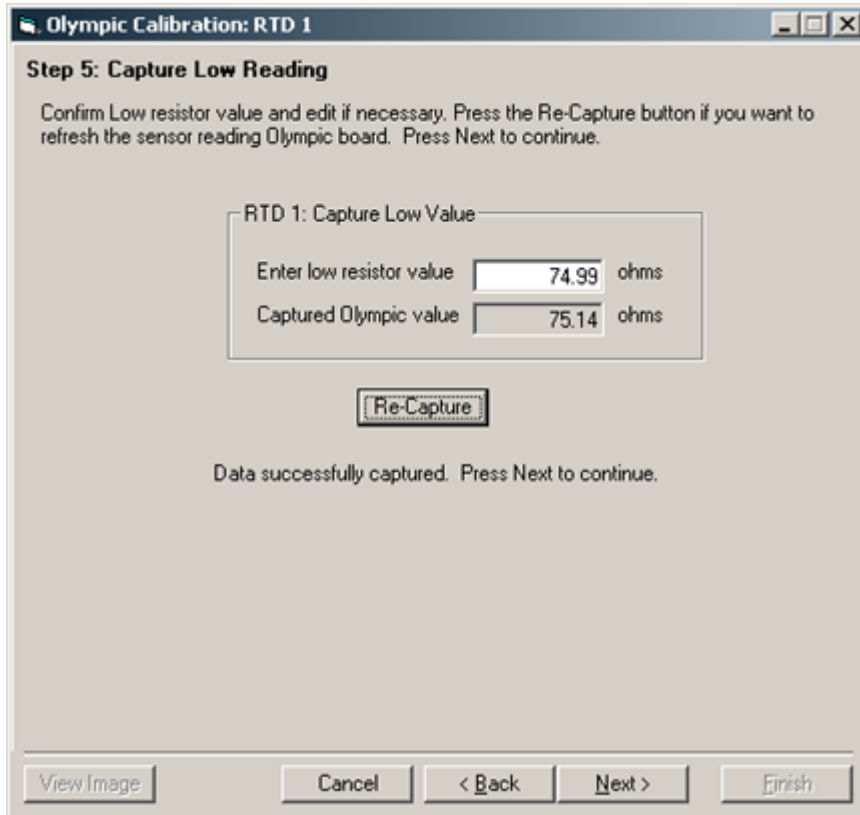
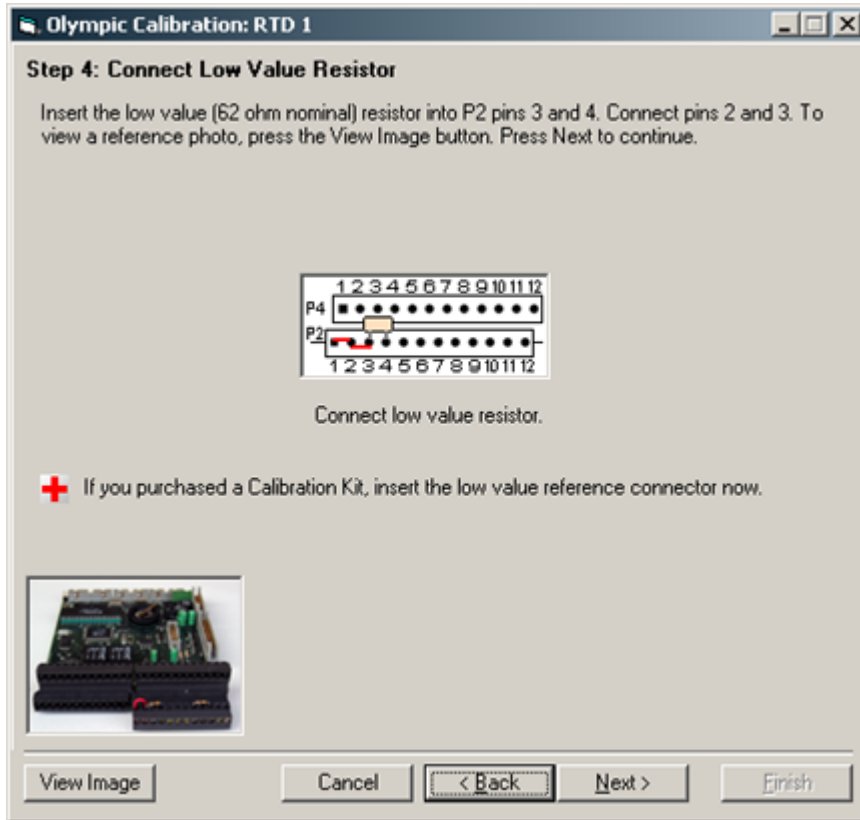
Confirm High resistor value and edit if necessary. Press the Re-Capture button if you want to refresh the sensor reading from the Olympic board. Press Next to continue.

RTD 1: Capture High Value

Enter high resistor value	<input type="text" value="243.11"/>	ohms
Captured Olympic value	<input type="text" value="243.65"/>	ohms

Data successfully captured. Press Next to continue.

View Image    Cancel    < Back    Next >    Finish



**Olympic Calibration: RTD 1**

**Step 6: Calculate New Gain and Offset**

The new gain and offset are displayed below. If you want to recalculate the gain and offset, press the Re-Calculate button. Press Next to continue.

RTD 1	Hi Resistor	Hi Reading	Lo Resistor	Lo Reading	ohms
	243.11	246.23	74.99	75.14	

Re-Calculate

RTD 1	New Gain	New Offset
	-17359	11544

View Image   Cancel   < Back   **Next >**   Finish

**Olympic Calibration: RTD 1**

**Step 7: Send RTD 1 Calibration Values to Olympic Board**

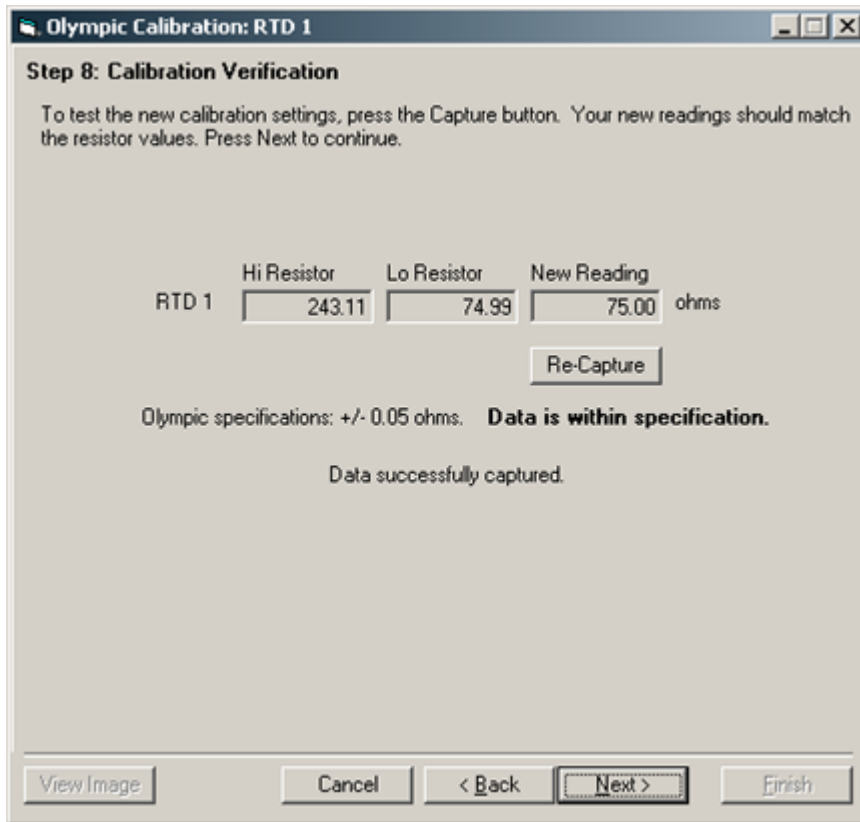
Displayed below are the new and original calibration settings. Select either the New Values or Original Values option. Press the Apply button to send the selected gain and offset values to the Olympic board. Press Next to continue.

	<input checked="" type="radio"/> New Values		<input type="radio"/> Original Values	
	Gain	Offset	Gain	Offset
RTD 1	-17417	11685	170	2250

Apply

Calibrations settings successfully applied to Olympic board.

View Image   Cancel   < Back   **Next >**   Finish



**About Tidal Engineering**

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award-winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company further provides product development services together with engineering support, and is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems. Tidal's products are available exclusively through ADI American Distributors Inc., an ISO-9002 certified distributor of electronic and electromechanical components and assemblies.

Tidal Engineering Corporation  
2 Emery Avenue  
Randolph, NJ 07869  
Tel: 973/328-1181  
Fax: 973/328-2302  
[www.TidalEng.com](http://www.TidalEng.com)  
[info@tidaleng.com](mailto:info@tidaleng.com)