

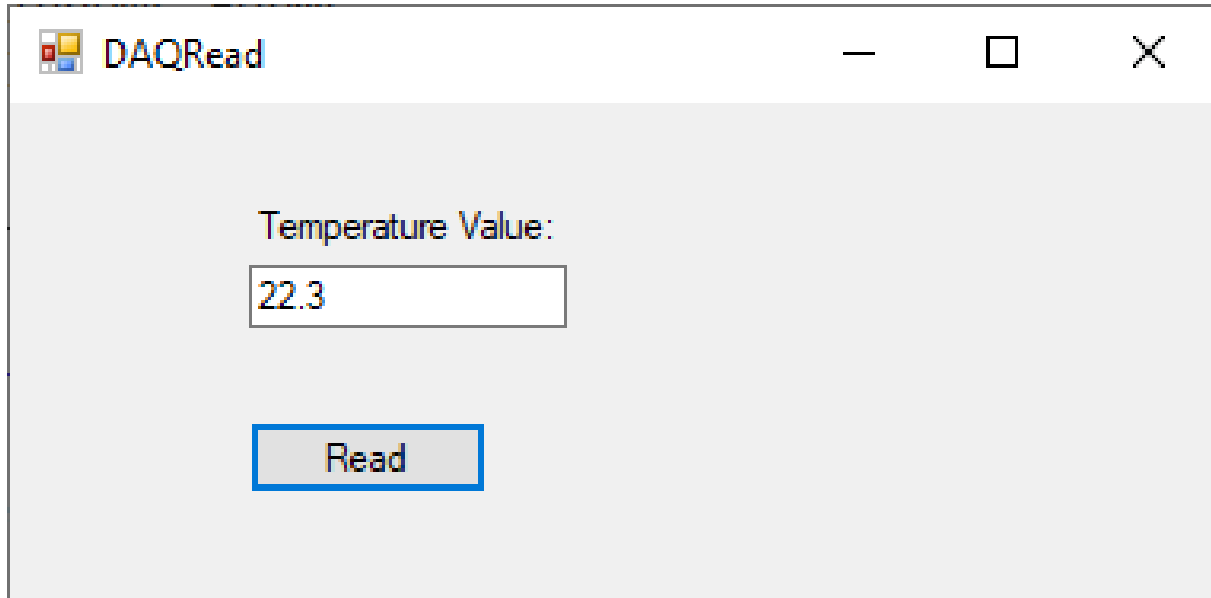
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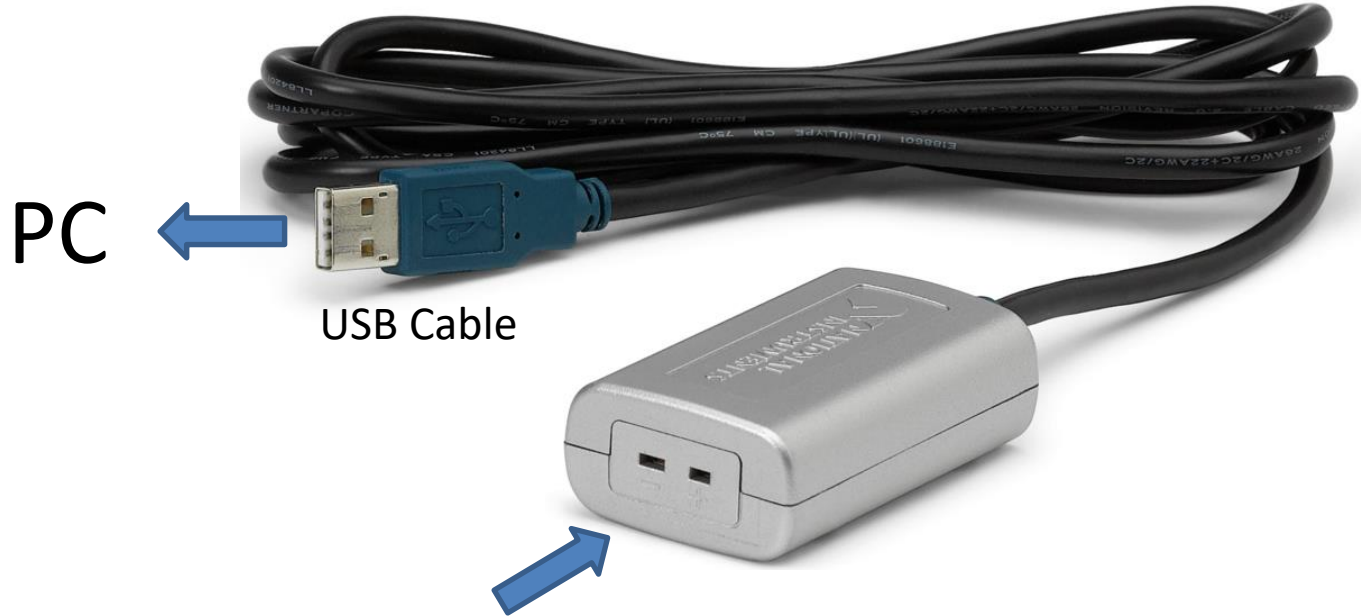
DAQ in Visual Studio using TC-01 and DAQmx

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Desktop Application



TC-01



PC

USB Cable

Here you can connect different Thermocouple Temperature Sensors

TC-01



J-Type Grounded Probe Thermocouple

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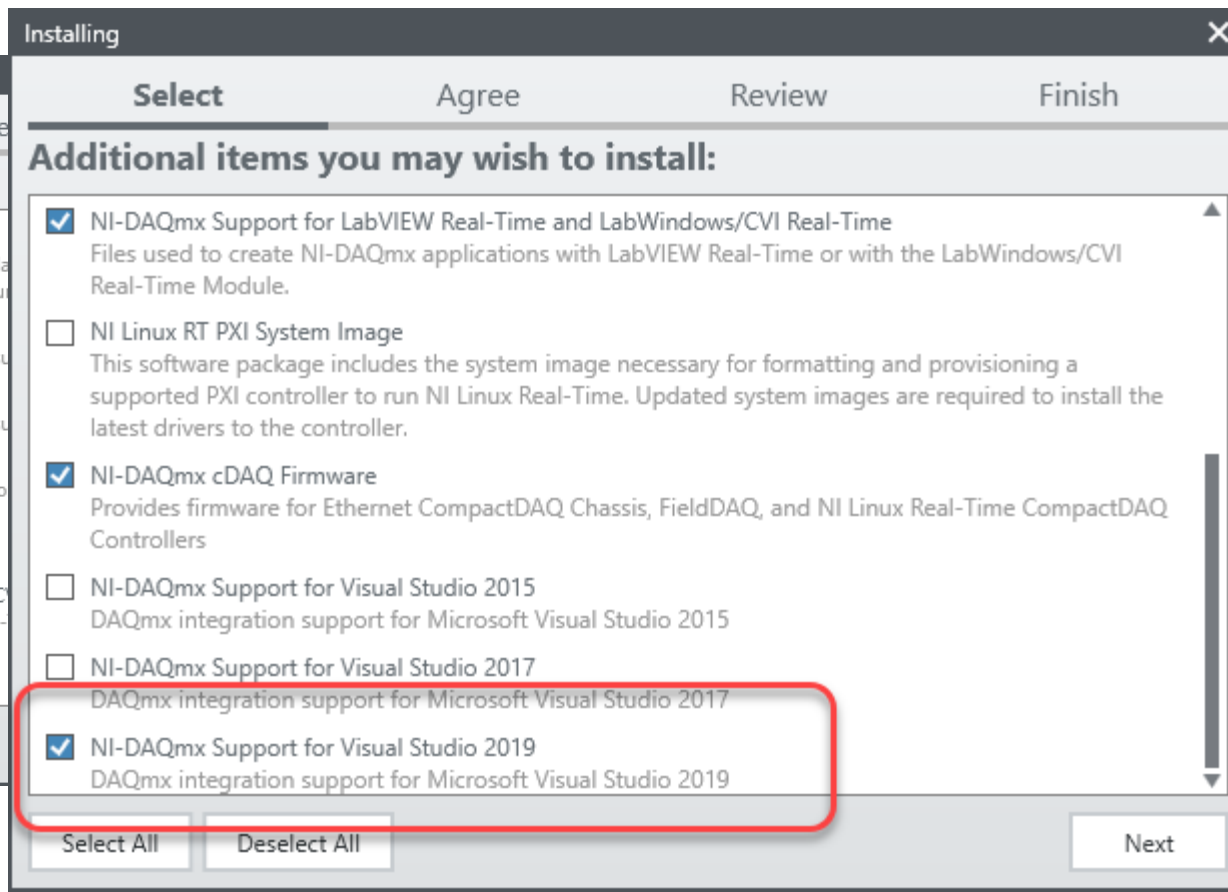
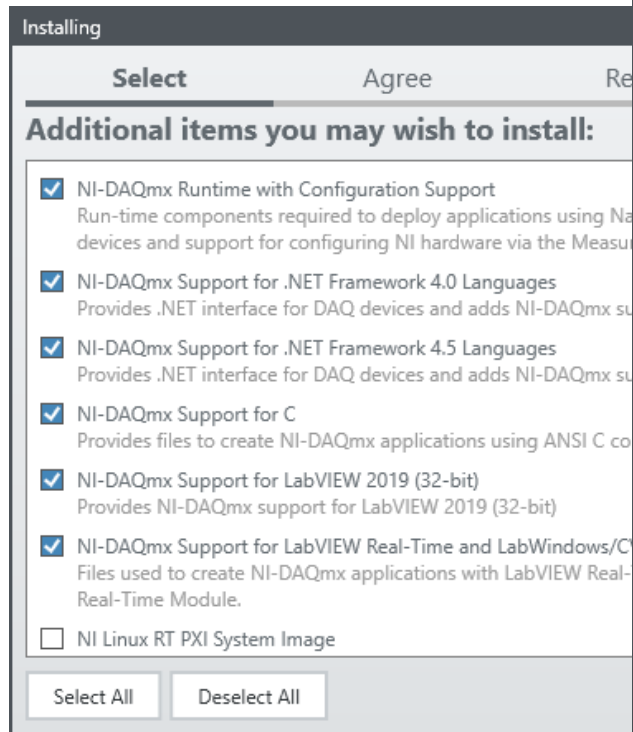
DAQmx

Hans-Petter Halvorsen

DAQmx

- Necessary Driver in order to use TC-01 in C# (or LabVIEW, etc)
- Free Download:
<https://www.ni.com/en-no/support/downloads/drivers/download.ni-daqmx.html>
- Make sure to at least select "NI-DAQmx Support for .NET Framework 4.x" and "NI-DAQmx Support for Visual Studio 2019" during the installation of DAQmx.

NI-DAQmx Driver



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Measurement & Automation Explorer (MAX)

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Measurement & Automation Explorer (MAX)

The screenshot displays the Measurement & Automation Explorer (MAX) application window. The title bar reads "NI USB-TC01 'Dev1' - Measurement & Automation Explorer". The interface is divided into several sections:

- Left Panel (Tree View):** Shows a hierarchical view of the system. Under "My System", "Devices and Interfaces" is expanded to show "NI USB-TC01 'Dev1'", which is selected.
- Top Menu Bar:** Includes "File", "Edit", "View", "Tools", and "Help".
- Toolbar:** Contains icons for "Save", "Refresh", "Self-Test", "Test Panels...", "Create Task...", and "Configure TEDS...".
- Settings Panel (Center):** Displays the configuration for the selected device. It includes a "Settings" section with the following details:

Name	Dev1
Vendor	National Instruments
Model	NI USB-TC01
Serial Number	017EAF07
Status	Present
- Right Panel (Help/Action):** Features a "Back" button and a section titled "NI-DAQmx Device Basics". Below this, it asks "What do you want to do?" and lists three actions:
 - ▶ Run the NI-DAQmx Test Panels
 - ▶ Remove the device
 - ▶ View or change device configuration

Test Panel

Test Panels : NI USB-TC01: "Dev1"

Analog Input

Channel Name: Dev 1/ai0 Rate (Hz): 10000

Mode: On Demand Samples To Read: 1000

Measurement Type: Thermocouple

Max Input Limit: 100 Min Input Limit: 0 Units: deg C

Thermocouple Type: J

CJC Source: Built-In

Amplitude vs. Samples Chart

Auto-scale chart

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Start Stop

Close Help

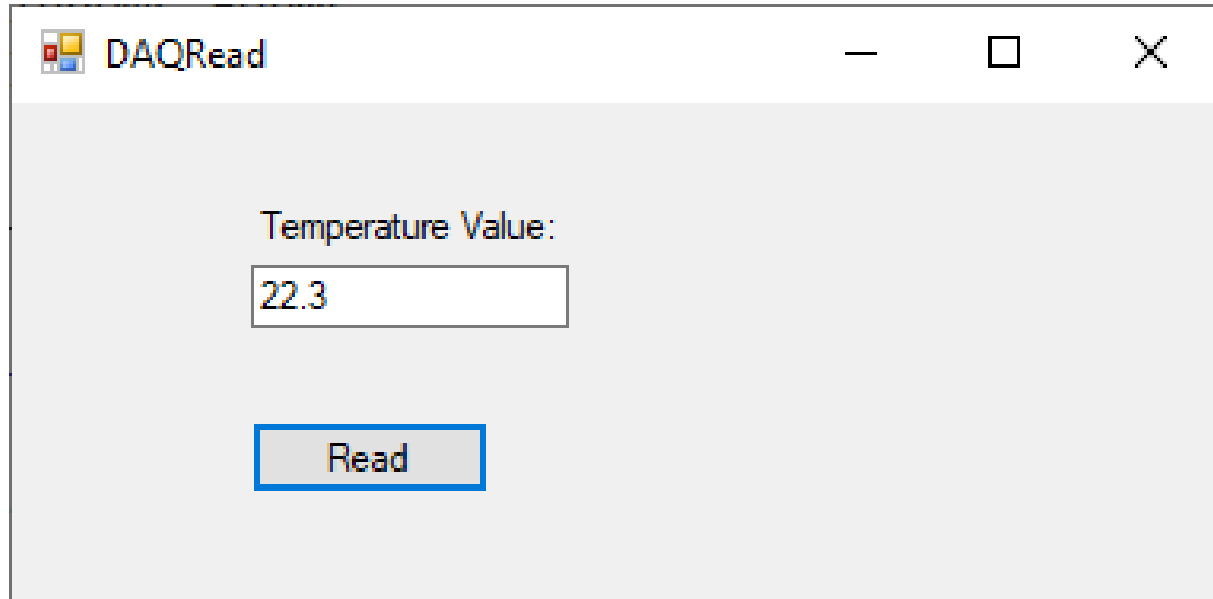
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Visual Studio

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Desktop Application



```
using NationalInstruments.DAQmx;
```

```
...
```

```
Task temperatureTask = new Task();
```

```
AIChannel myAIChannel;
```

```
myAIChannel = temperatureTask.AIChannels.CreateThermocoupleChannel(
```

```
    "Dev1/ai0",
```

```
    "Temperature",
```

```
    0,
```

```
    100,
```

```
    AIThermocoupleType.J,
```

```
    AITemperatureUnits.DegreesC
```

```
);
```

```
AnalogSingleChannelReader reader = new AnalogSingleChannelReader(temperatureTask.Stream);
```

```
double tempData = reader.ReadSingleSample();
```

```
txtTemperature.Text = tempData.ToString("0.0");
```

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