



### **PM100x Visual C# Programming**

This is a brief overview of how to get started making a custom program to communicate with a PM100x Compact Power and Energy Meter Console. While this application note is written for the PM100D Power and Energy Meter, the process is similar for our other Handheld (PM100A, PM160, and PM160T) Power Meters, as well as our Touchscreen (PM400 and PM200) and USB-Interface (PM100USB and PM16 series) Power Meters. The example program is for reference only and the user is encouraged to extend or modify the program to fit his or her specific needs.

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## **Part 1. Preface**

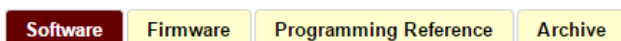
This application note was written for the PM100D Optical Power and Energy Meter using the firmware and software versions detailed below. Functionality and procedures may vary when using other controllers or firmware/software versions.

- PM100D Firmware: Version 2.3.2
- Software for PM16, PM160, PM160T, PM100A, PM100D, PM100USB, and PM200 Optical Power and Energy Meter Series: Version 5.4
- LabVIEW: Version 11.0.1f2 (32 bit)

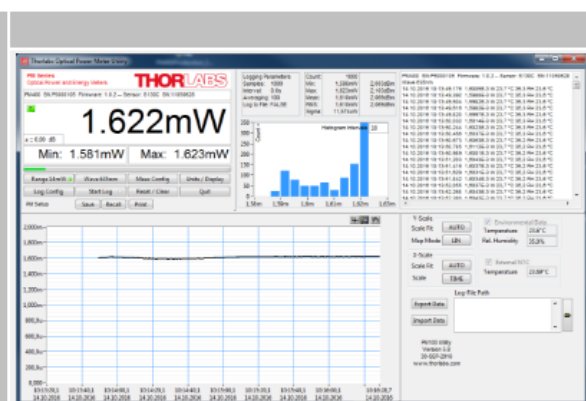
## Part 2. Step by Step Instructions

1. Download and install the software for our Touchscreen (PM400 and PM200), Handheld (PM100D, PM100A, PM160, and PM160T), and USB-Interface (PM100USB and PM16 series) Power Meters located on the Software tab here:

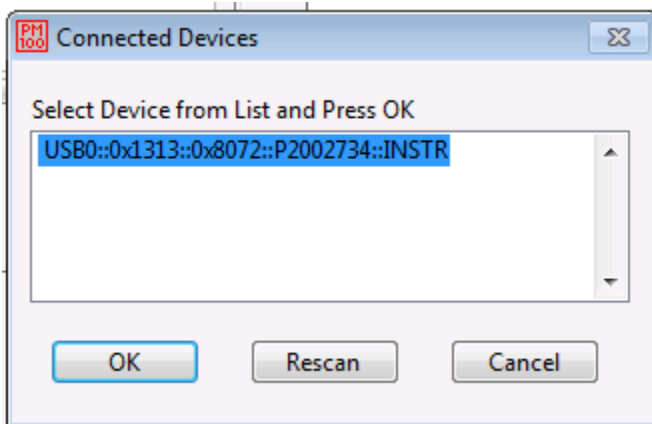
[http://www.thorlabs.com/software\\_pages/ViewSoftwarePage.cfm?Code=PM100x](http://www.thorlabs.com/software_pages/ViewSoftwarePage.cfm?Code=PM100x)



Thorlabs' Power Meter Software	
<b>Description</b>	This software includes the Optical Power Meter Utility, Multi Power Meter Utility, Power Meter Monitor, device drivers, programming examples, and run-time engines to operate our Touchscreen, Handheld, and USB-Interface Power Meters remotely.
<b>Version</b>	1.0.1
<b>Filesize</b>	429 MB
<b>Download</b>	<a href="#">Download</a>
<b>Additional</b>	This software is not compatible with the PM320E Benchtop Power Meter.
<b>System Requirements</b>	Hardware: CPU: 1 GHz or Higher RAM: 256 MB Graphics Card: Min 32 MB Memory Hard Disk: Min 100 MB Free Storage Space Free USB 2.0 Port, USB 2.0 Cable Software: Windows® XP (32 bit) SP3 or Windows® Vista, 7, 8.1, or 10 (32 bit, 64 bit)
<b>Additional Software</b>	National Instruments™ VISA Engine V5.4 or higher. National Instruments™ LabVIEW Engine 2015. Engines included with the Installer. See <a href="http://www.ni.com">www.ni.com</a> for details and downloads.



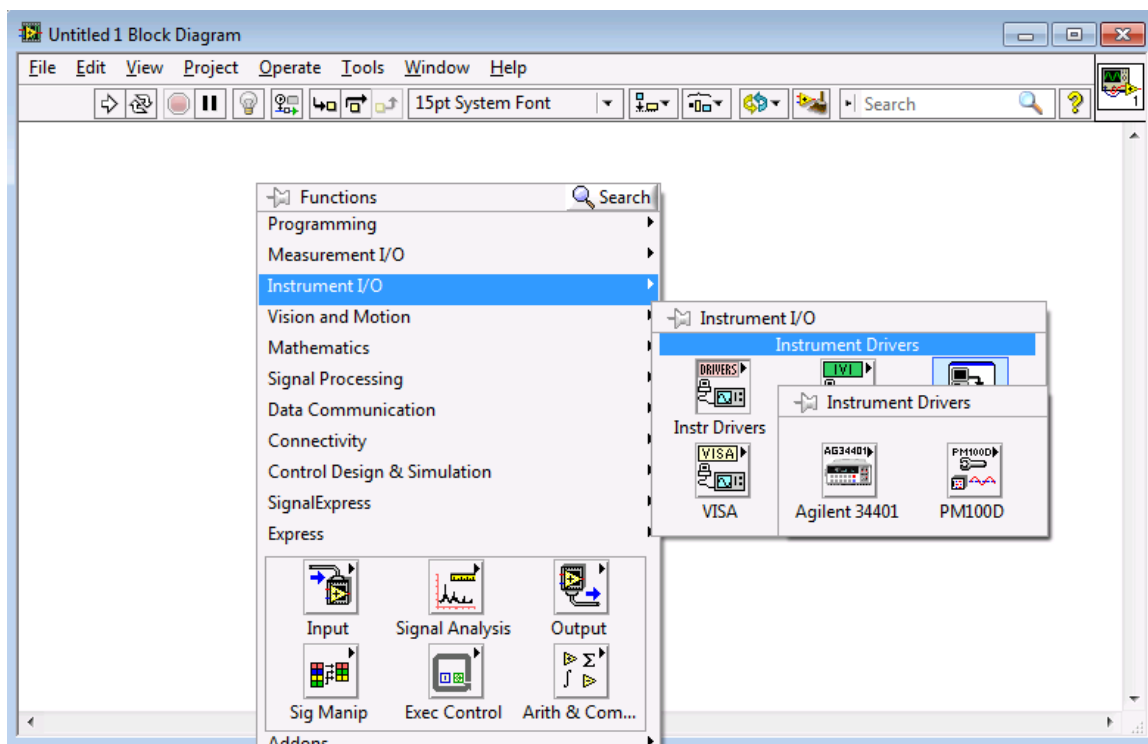
2. Run the Thorlabs Optical Power Meter Utility to verify that your instrument is working with the computer correctly. Make note of your Device ID in the Connected Devices window (this will be used in step 10).



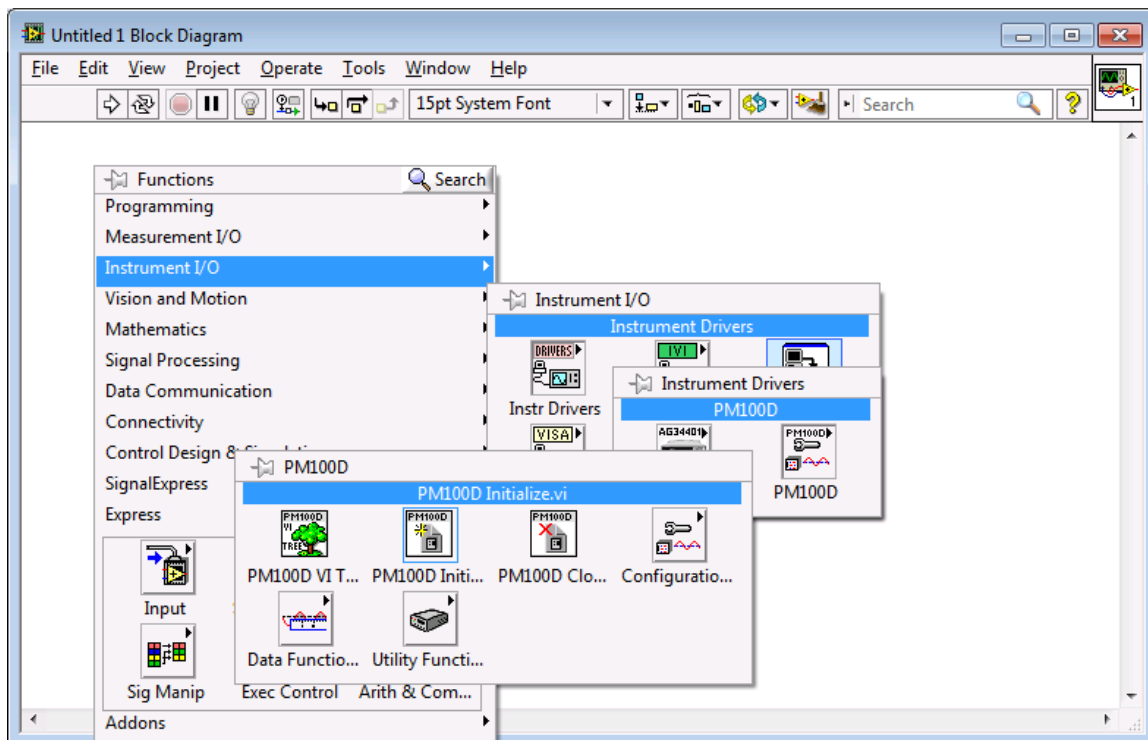
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- Getting Started
- File Operate Tools Help
- LabVIEW<sup>™</sup> 2011
- Search
- Licensed for Base Version
- New**
- Blank VI
  - Empty Project
  - VI from Template...
  - More...
- Open**
- Browse...
- Latest from ni.com**
- LabVIEW News
  - LabVIEW in Action
  - Example Programs
  - Training Resources
- Online Support**
- Discussion Forums
  - Code Sharing
  - KnowledgeBase
  - Request Support
- Help**
- Getting Started with LabVIEW
  - List of All New Features
  - Find Examples...
  - Find Instrument Drivers...
  - Find LabVIEW Add-ons...

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- The screenshot displays two windows from the LabVIEW software interface. The left window, titled 'Untitled 1 Front Panel', shows a blank front panel with a light gray grid background. The right window, titled 'Untitled 1 Block Diagram', shows a blank block diagram with a white background. Both windows have a menu bar with 'File', 'Edit', 'View', 'Project', 'Operate', 'Tools', 'Window', and 'Help'. The front panel window has a toolbar with icons for zooming, undo, redo, and a search icon, along with a font dropdown set to '15pt Application Font'. The block diagram window has a similar toolbar with additional icons for block selection and a search icon, with a font dropdown set to '15pt System Font'.

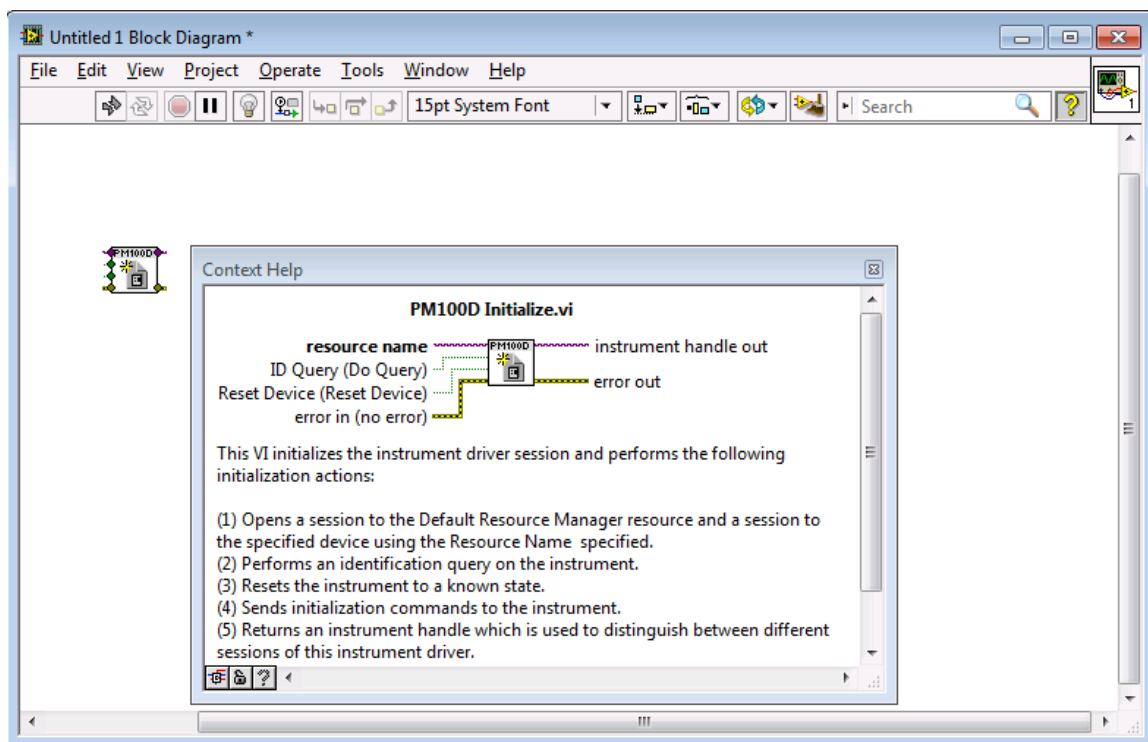
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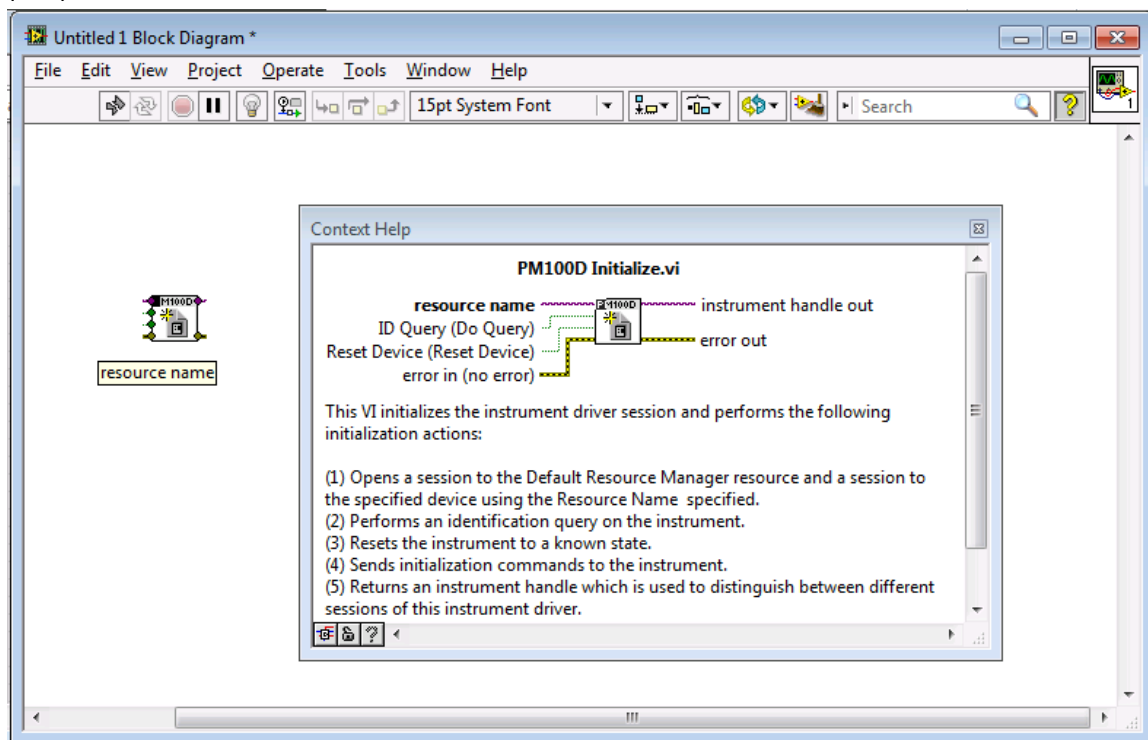
6. In the PM100D folder select PM100D Initialize.vi.



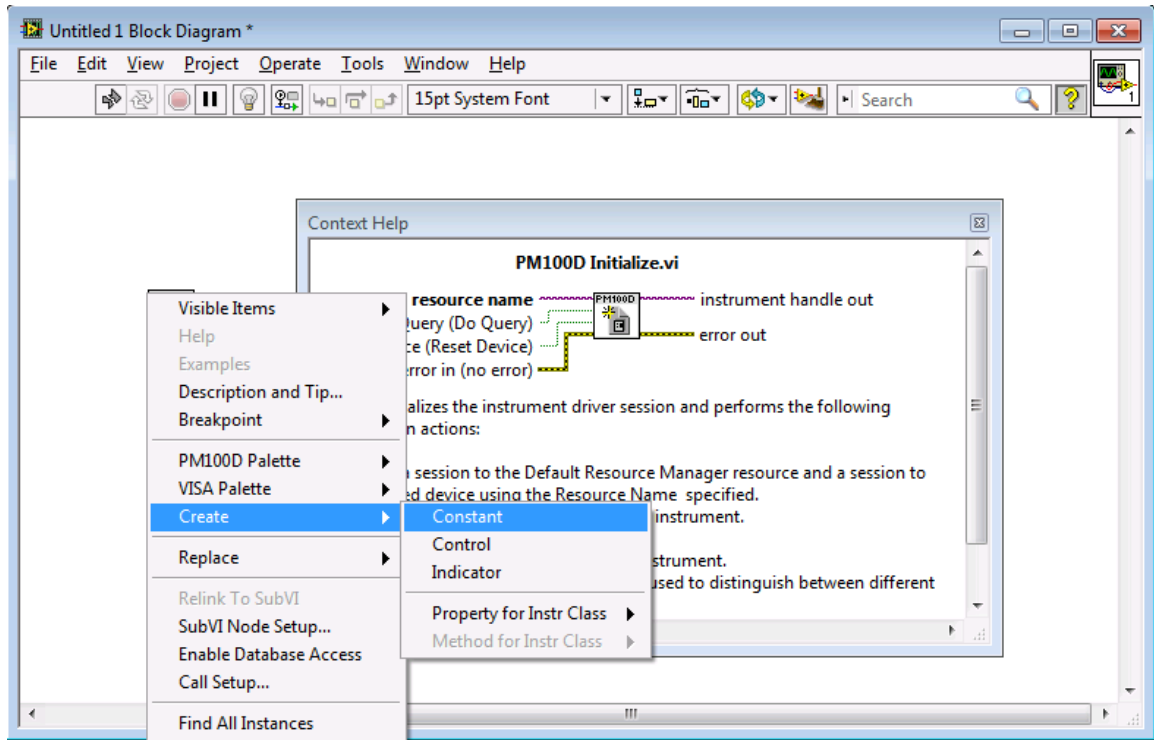
7. Place **PM100D Initialize.vi** on the block diagram. You can press Ctrl+H to open a help window which will show more information about any PM100D subVI the mouse is hovering over.



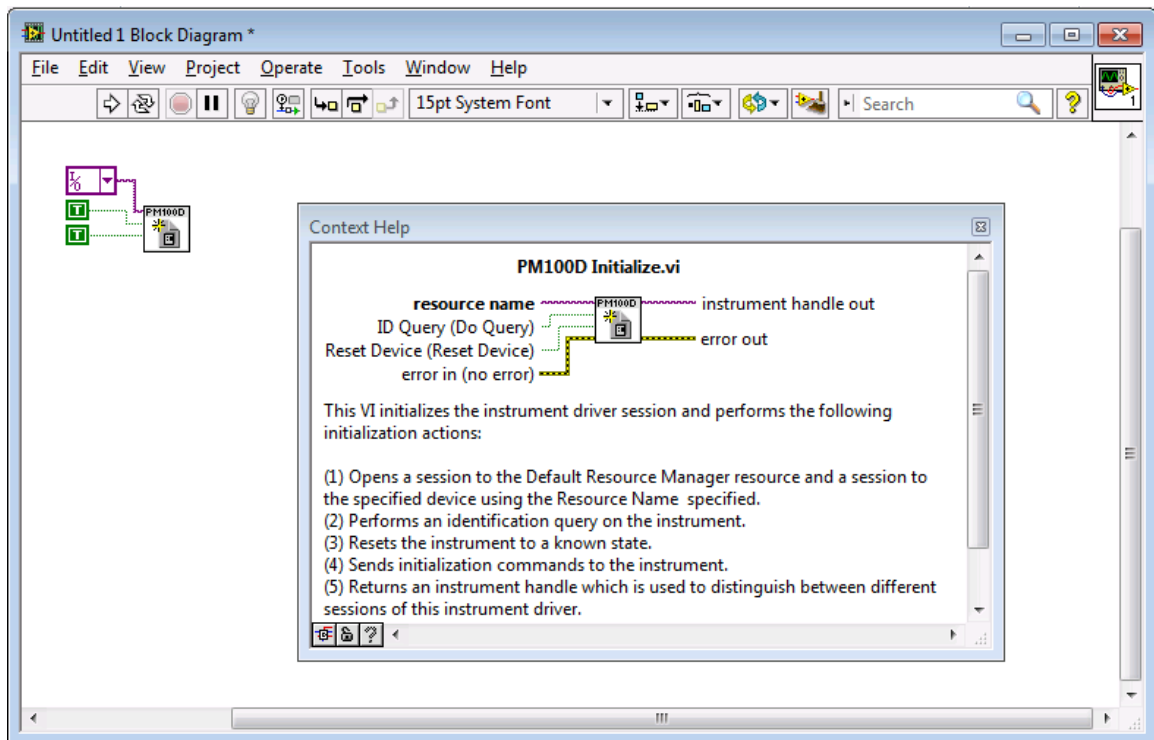
8. Place the cursor over the purple *resource name* node. It should change shape to a spool of wire (  ).



9. Right-click on the node and select Constant from the Create menu.

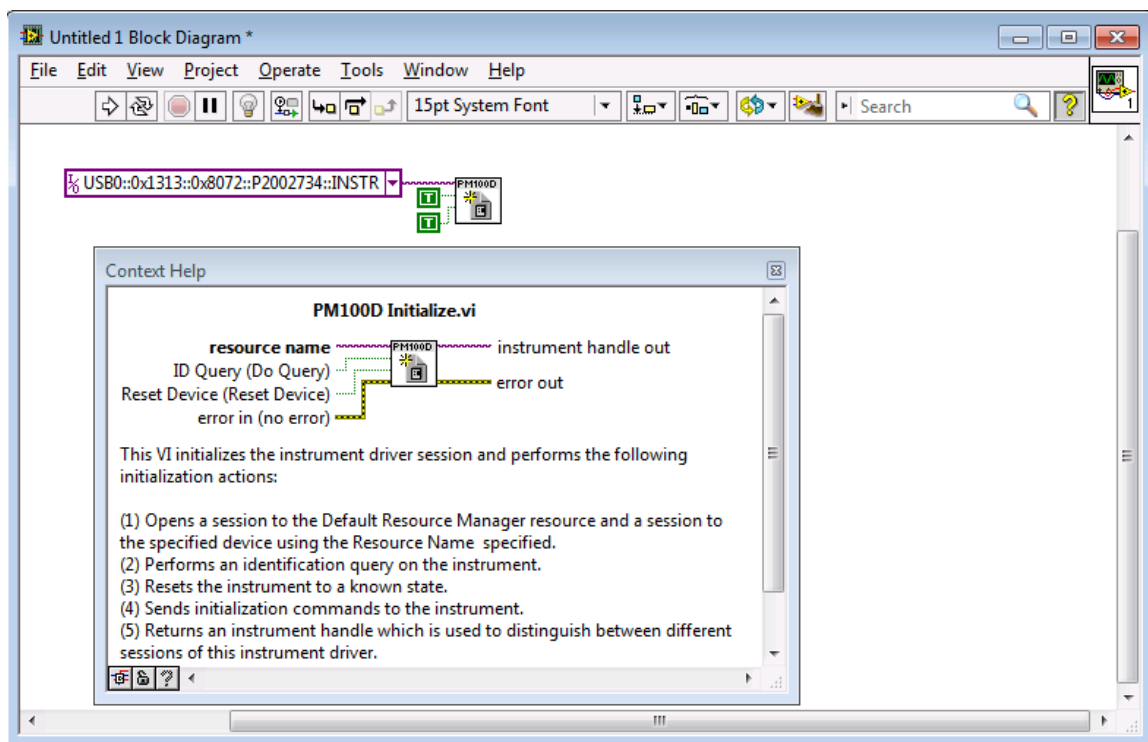


10. Do the same for the green *ID Query* and *Reset Device* nodes.

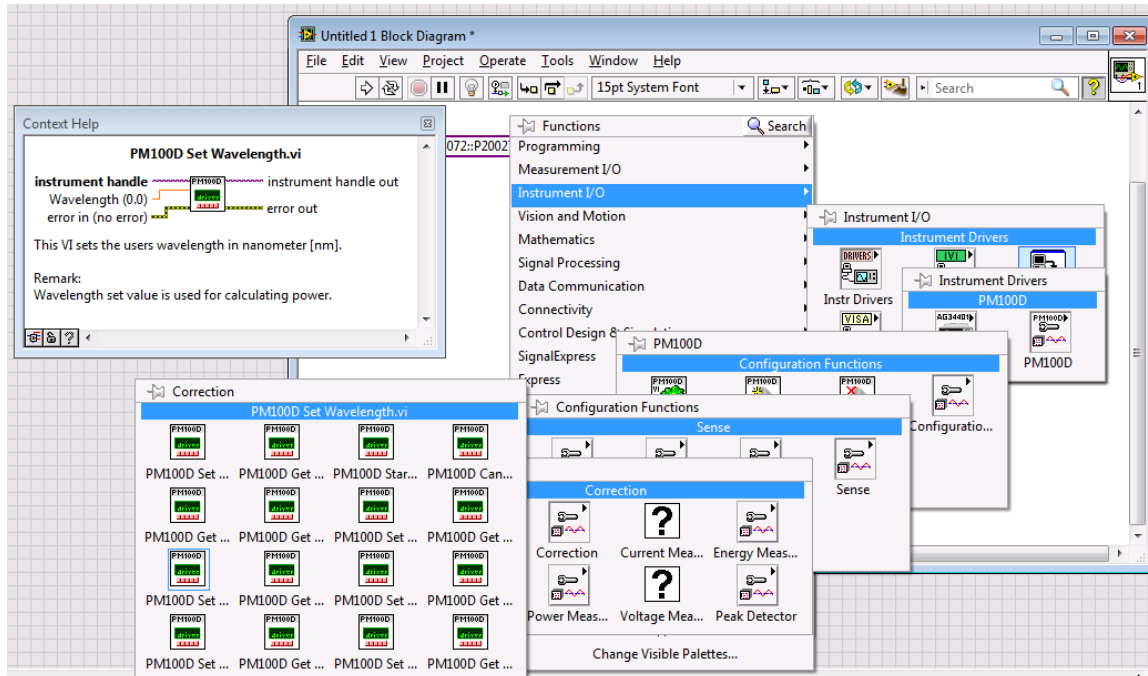


11. Left-click on the resource name constant and select your device resource name. *ID Query* and *Reset Device* can be left as T (true).

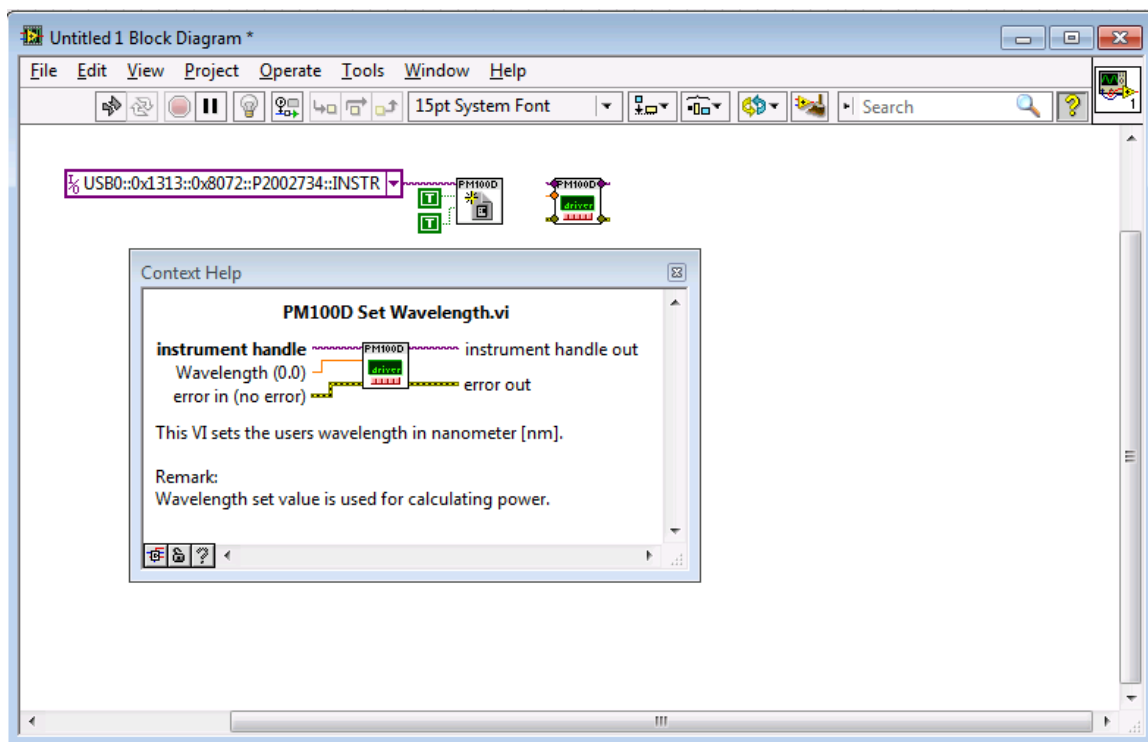




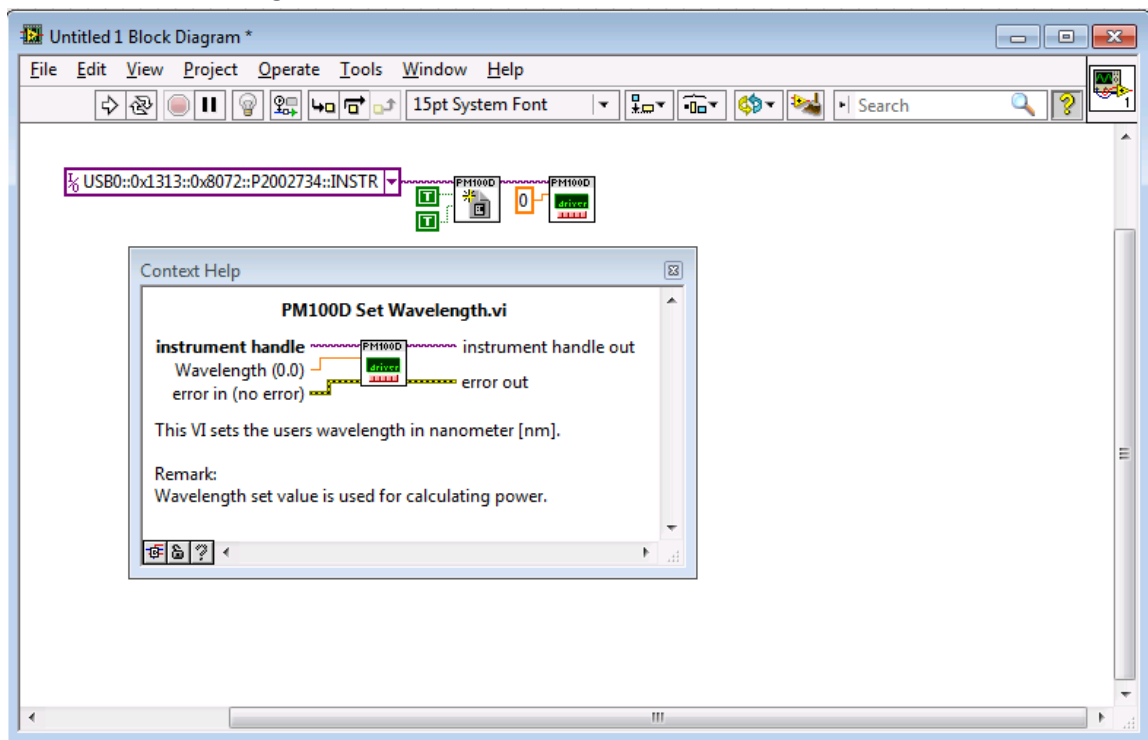
12. From the functions palette select PM100D Set Wavelength.vi. It is located in Instrument I/O>Instrument Drivers>PM100D>Configuration Functions>Sense>Correction.



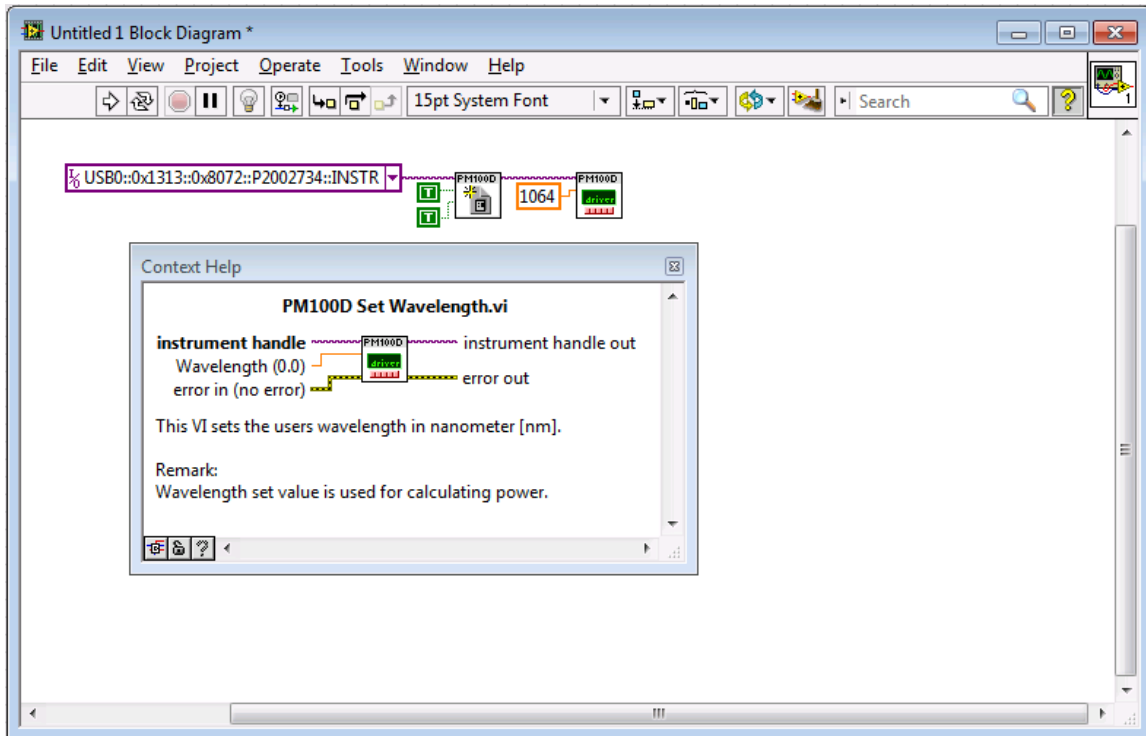
13. Place **PM100D Set Wavelength.vi** on the block diagram.



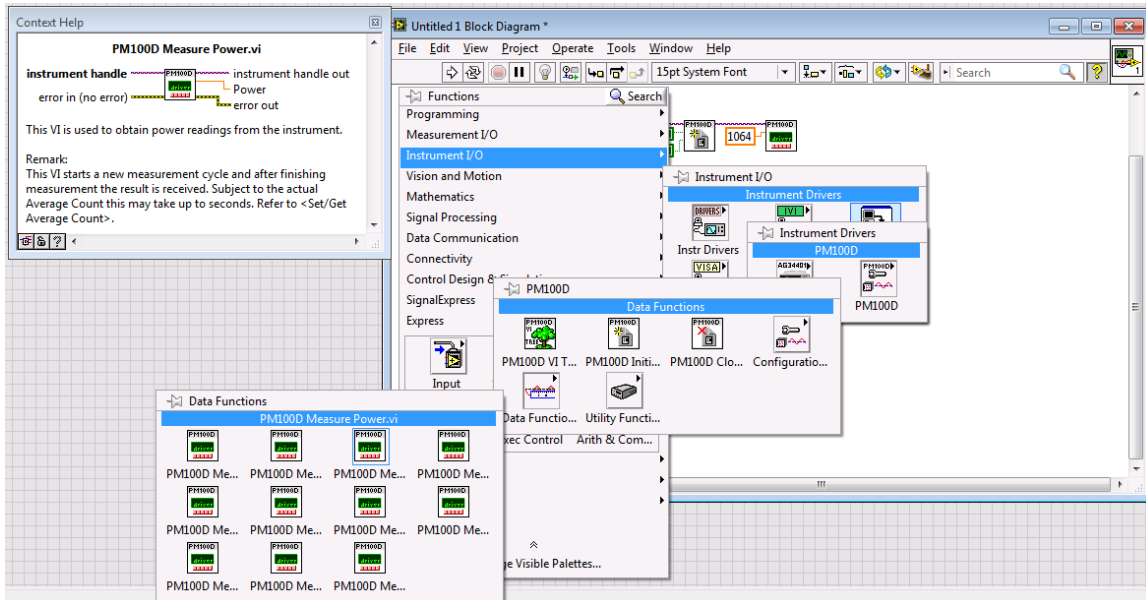
14. Connect the *instrument handle out* node on **PM100D Initialize.vi** to the *instrument handle* node on **PM100D Set Wavelength.vi**. Right-click on the orange *Wavelength (0.0)* node on **PM100D Set Wavelength.vi** and create a constant.



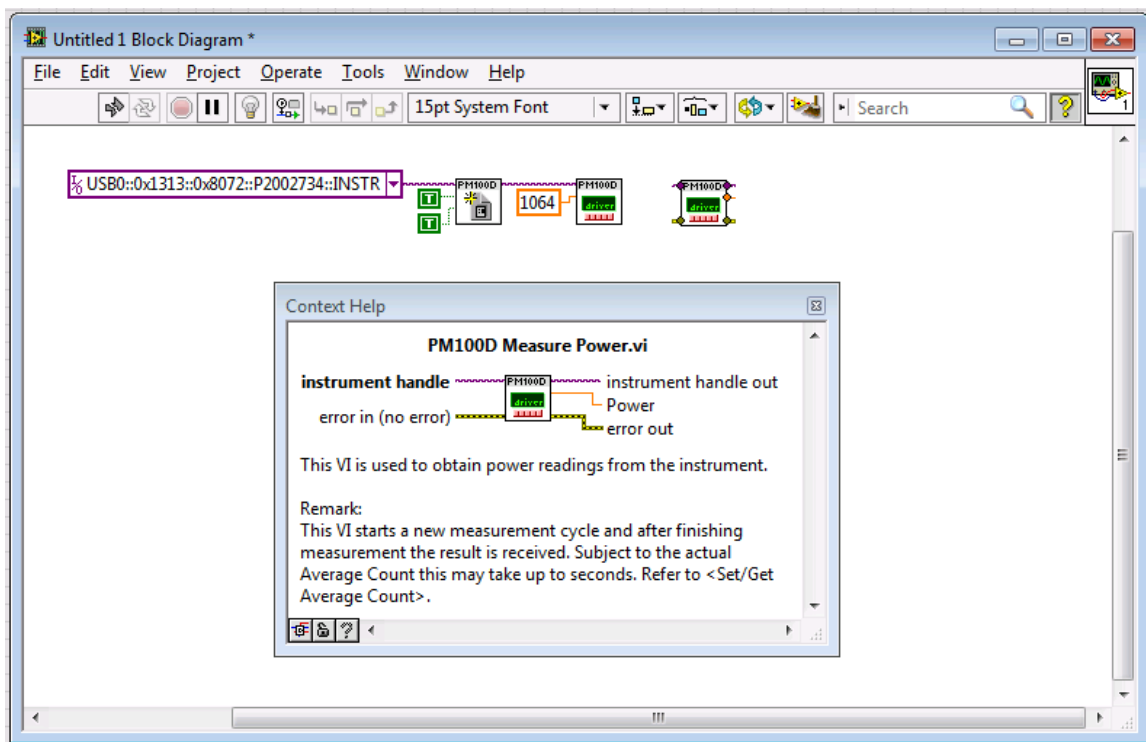
15. Double-click on the wavelength constant to edit the wavelength. The units are nm.



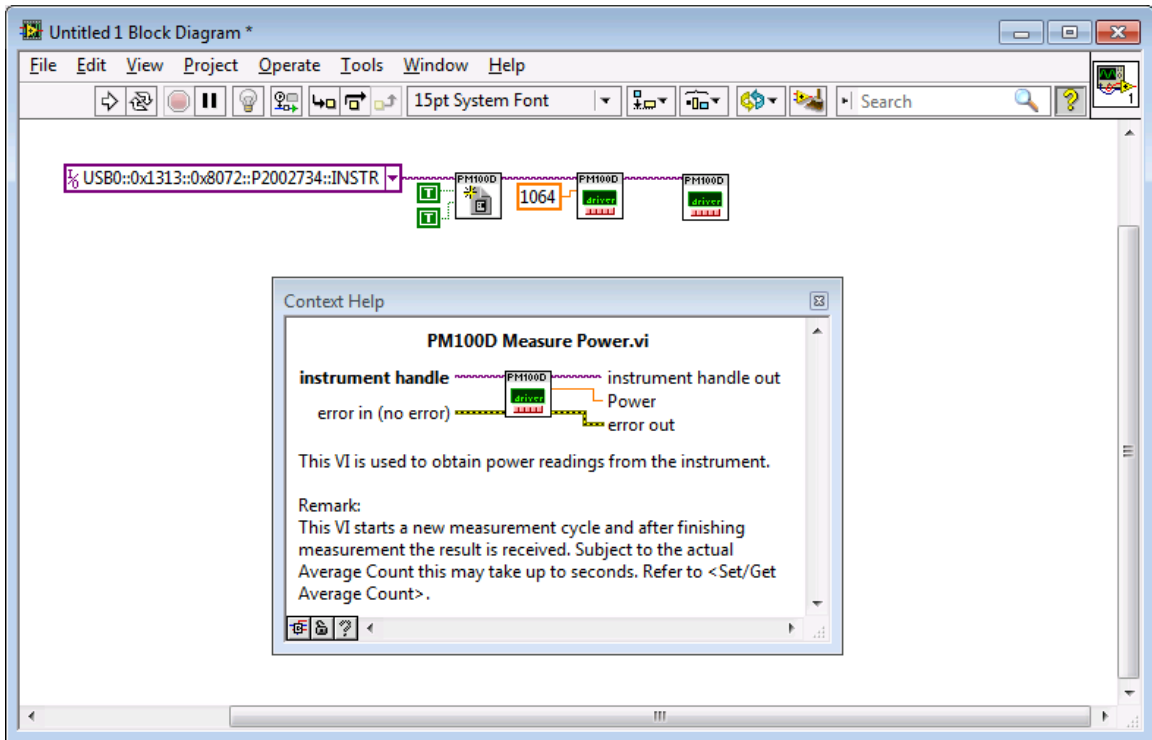
16. From the functions palette select PM100D Measure Power.vi. It is located in Instrument I/O>Instrument Drivers>PM100D>Data Functions.



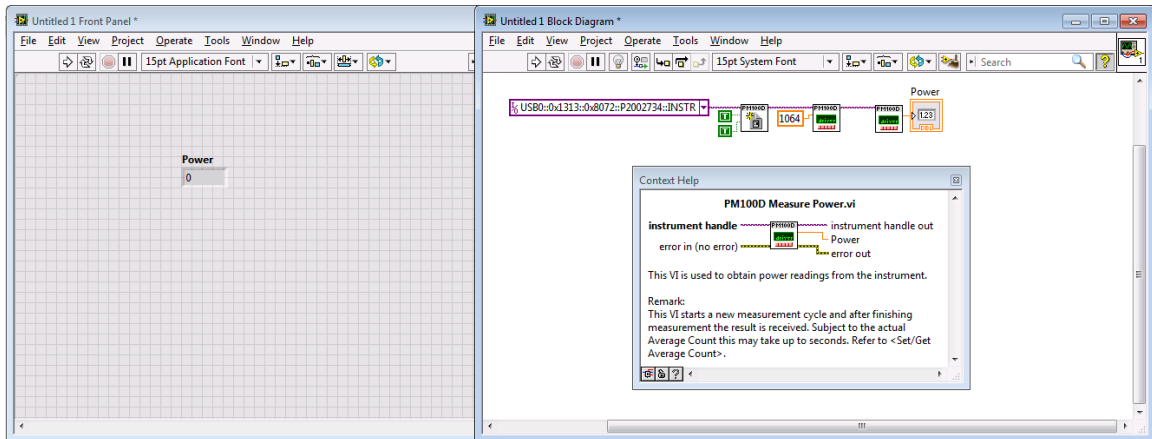
17. Place PM100D Set Wavelength.vi on the block diagram.



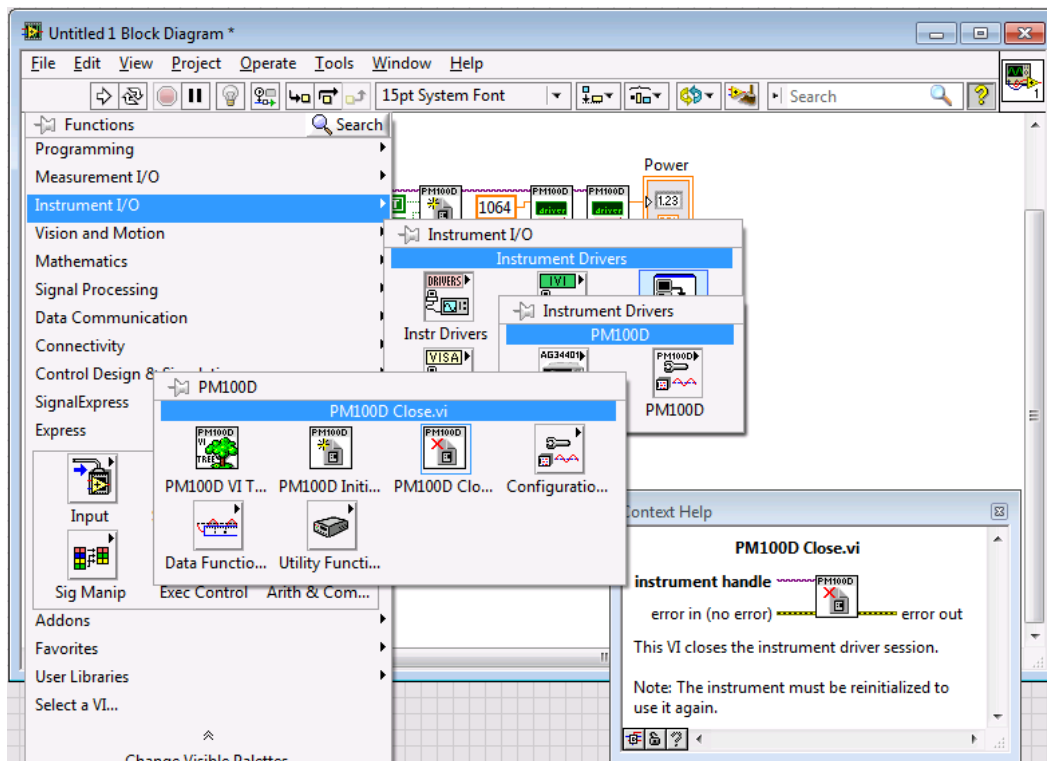
18. Connect the *instrument handle out* node on **PM100D Set Wavelength.vi** to the *instrument handle* node on **PM100D Measure Power.vi**.



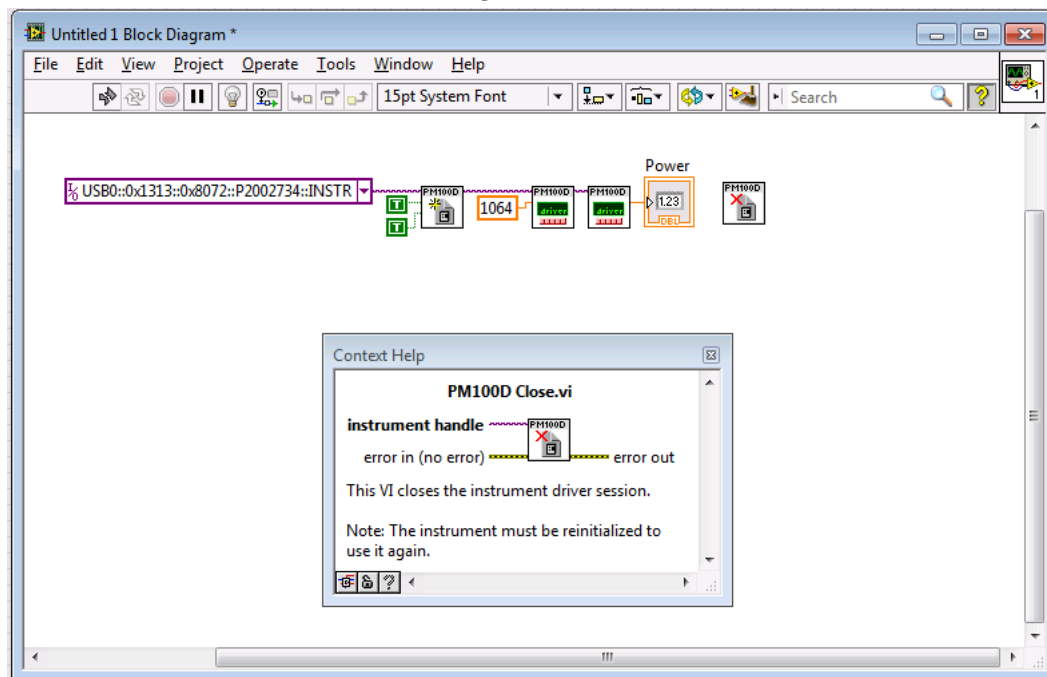
19. Right-click on the orange *Power* node on **PM100D Measure Power.vi** and create an Indicator (in the same menu as Constant). This will place a display on the Front Panel which will show the power. The display can be moved and resized as needed.



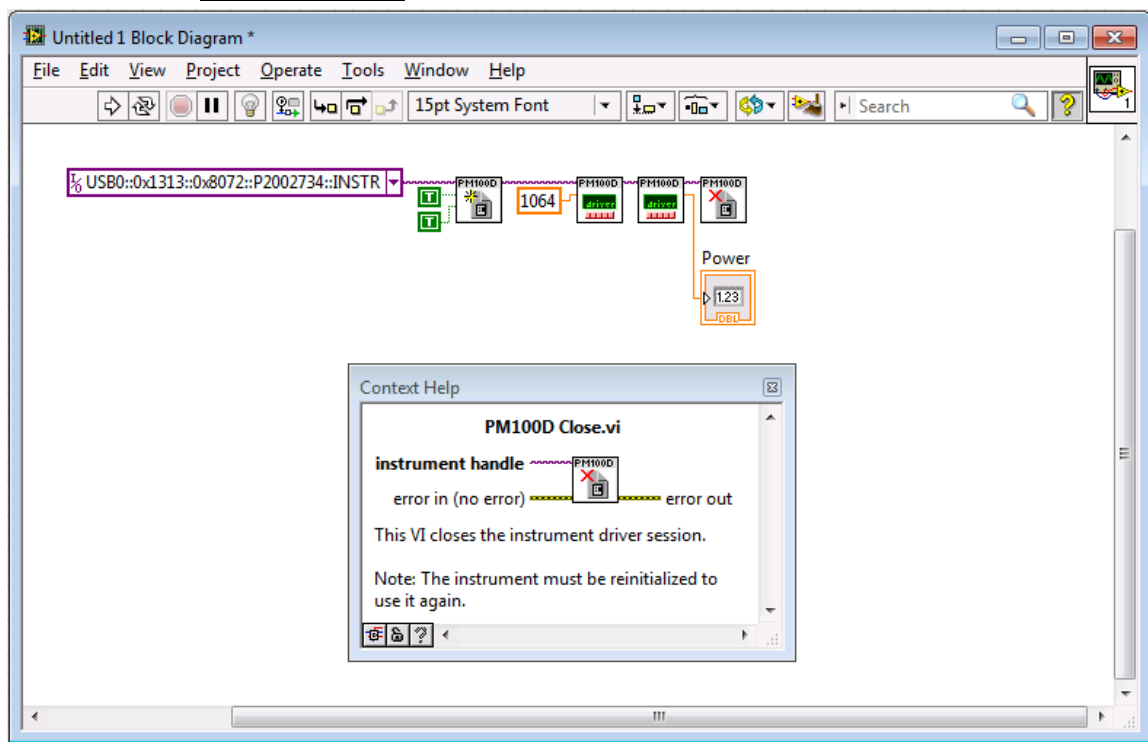
20. From the functions palette select **PM100D Close.vi**. It is located in Instrument I/O>Instrument Drivers>PM100D.




21. Place **PM100D Close.vi** on the block diagram.



22. Connect the *instrument handle out* node on **PM100D Measure Power.vi** to the *instrument handle* node on **PM100D Close.vi**.



23. Go to the Front Panel and press the arrow (  ) in the top left to run the program.

