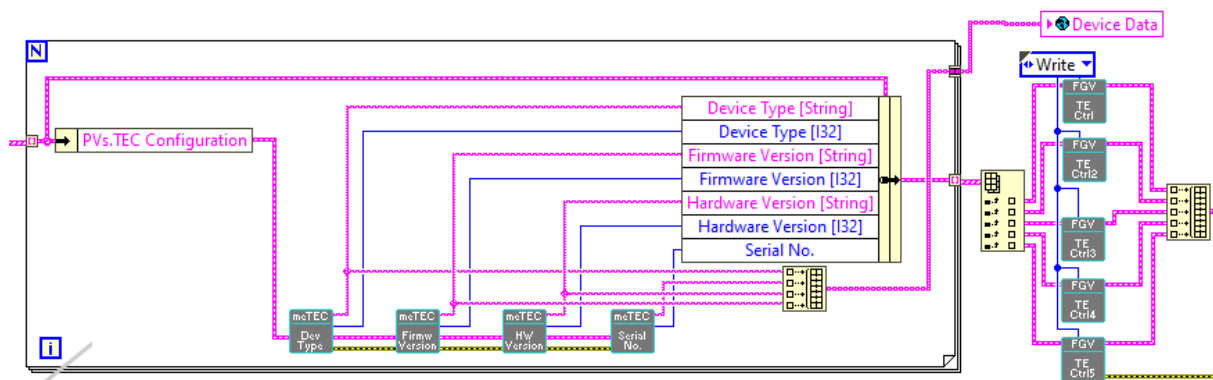
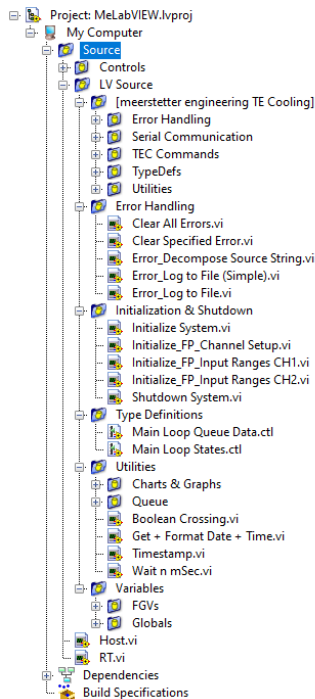


User Manual – MeLabVIEW



**meerstetter
engineering** 

 Member of Berndorf Group



Developed, assembled, and tested in Switzerland

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Meerstetter Engineering GmbH (ME) reserves the right to make changes without further notice to the product described herein. Information furnished by ME is believed to be accurate and reliable. However typical parameters can vary depending on the application and actual performance may vary over time. All operating parameters must be validated by the customer under actual application conditions.

Document 5200J

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1 Purpose

The purpose of the MeLabVIEW template project is to facilitate the implementation of a Meerstetter device into a LabVIEW based environment or to provide a base to build own LabVIEW programs.

This document applies to version 0.21 of the MeLabVIEW project.

1.1 Support

The software is provided “as is” and we cannot provide support for LabVIEW implementations or changes in the MeLabVIEW project. However, suggestions for improvement are always welcome.

2 Function Overview

The following functions are available in the corresponding VIs of the MeLabVIEW project:

- Host:
 - “Configure” tab
 - Select which devices are active
 - Load a commands list
 - “TEC Controller X” tab
 - Monitors and controls parameters
- RT:
 - Receive/Transmit VI, communicates with the configured devices
 - Shows error information

It is possible to connect up to 5 devices.

2.1 Documents

Please refer to the document 5117 “MeCom Protocol Specification” and the communication protocol document specific to your device for an overview of the commands available.

2.2 Requirements

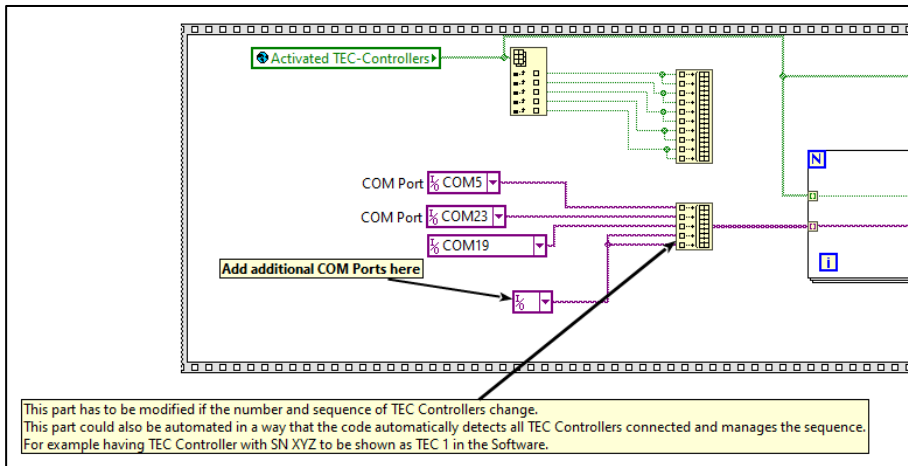
To run the application and to connect the device you need the following components:

- LabVIEW: <https://www.ni.com/labview/>
 - MeLabVIEW is compatible with LabVIEW 2016 and higher
- NI-VISA Runtime 16: <https://www.ni.com/en/support/downloads/drivers/download.ni-visa.html#306112>
 - Or a newer version of NI-VISA (compatibility with NI-VISA 16.0)

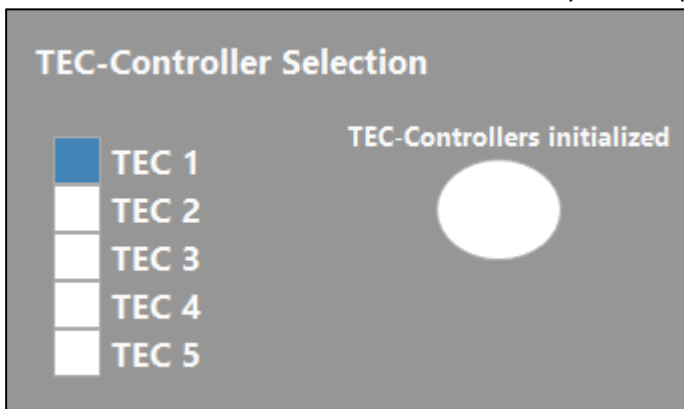
After the installation you should find in the NI Measurement & Automation Explorer (NI MAX) the NI-VISA runtime in the menu “Software” in the sidebar. If not, NI-VISA Runtime is probably not installed.

3 Operation

- Open the LabVIEW project MeLabVIEW.lvproj.
- Find the RT.vi file in the Source folder and open its block diagram.
- Configure the COM ports to match your system:



- Find the Host.vi file in the Source folder and open its front panel.
- In “TEC-Controller Selection” select the devices you have previously configured COM ports for:



- Either enter the path to the “Commands Table.txt” file in the TEC Commands List field, or select the file when starting the VI.
- Run the Host VI.
- Run the RT VI.
- Connecting to a device can take some seconds.
- Once connected, the Host VI serves as a monitoring and control interface while the RT VI maintains the communication.
- Use the stop button in the Host VI to terminate both VIs.

3.1 Configuration for LTR-1200

If you use TEC controllers inside an LTR-1200 rack, there are two possibilities to configure the communication.

Use the MeLabVIEW project without changes in the communication and set the default routing of the LTR-1200 to the corresponding device in the rack. This can be done using the buttons on the front panel or using the Rack HMI Service Software. The “Maintenance” tab in the service software lets you

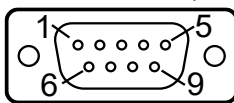
choose the “Device to be Addressed”. (Please refer to the document 5171 “LTR-1200 User Manual” for more information.)

Another way is to configure the MeLabVIEW project, such that it connects to a given device. In the VI “RT”, choose the device address and COM port to be used.

3.2 USB / RS-485

For the usage of USB/RS-485 converters, e.g., USB-485 device from National Instruments (<https://www.ni.com/en-us/support/model.usb-485.html>), you must follow these steps:

- The TEC controller only has 3 pins for RS-485 communication (GND, A, B). If the converter has separate TX and RX lines, the corresponding lines must be jumpered together. I.e., RXD+ with TXD+ and RXD- with TXD-.
- Refer to the following picture as an example for the DB-9 (male) pinout of the USB-485 device from NI, where pin 1 = GND, pin 4 = RXD+, pin 8 = TXD+, pin 5 = RXD- and pin 9 = TXD-:

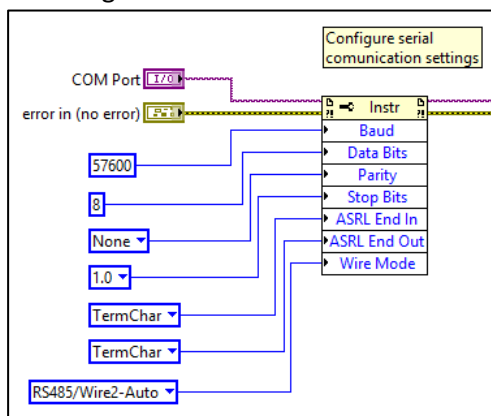


- Wire pin 1 to the TEC controller GND. Jumper pins 4 & 8 together and wire them to terminal A of the TEC controller.
Jumper pins 5 & 9 together and wire them to terminal B of the TEC controller.¹
- Set the converter’s wire mode to “RS485/Wire2-Auto”.

The last setting can be set in NI MAX (more information:

<https://digital.ni.com/public.nsf/allkb/47B83A8BF108021786257602004FE968>)

or programmatically in the VI “meTEC_Open Session” by using property nodes. Please refer to the following screenshot:



¹ We follow the convention of most differential transceiver manufacturers, where A is the non-inverting pin and B the inverting pin.

4 Remarks

Prior to connecting the MeLabVIEW application to the device, you need to close the configuration software or any other software that might connect to the device via COM port and vice versa. Otherwise, the COM port is blocked, and the application will not be able to connect to the device.

The 0.20 release introduced some breaking changes. The previous version (0.14) is still available on our website as "TEC LabVIEW Control Software" at

<https://www.meerstetter.ch/customer-center/downloads/category/31-latest-software>.

A Change History

Date of change	Doc/Version	Changed/ Approved	Change / Reason
4 December 2023	H	SC / XF	<ul style="list-style-type: none">• Rename project to MeLabVIEW• Adjust operation instructions according to the new version of the software• Add change history
9 April 2024	I	SC / XF	<ul style="list-style-type: none">• Add a note about the previous version of the LabVIEW software
18 March 2025	J	SC / XF SC / SR	<ul style="list-style-type: none">• Adjustments for TEC firmware v6 release and reworked parameter system• Added commands table selection to operation chapter