Mechanical Devices

Labview Interface

Overview

The following document describes the Mechanical Devices Labview interface pack.

Requirements

- Mechanical Devices Labview interface package.
- Labview
- Windows XP/Vista/7/8

Getting started

In order to start using the Labview interface, please perform the following steps:

1. Unpack the Mechanical Devices Labview Interface package. The package includes two files:
    a. MDInterface.dll
    b. MDInterface.h
2. Make sure both of the files exist in your package and save them in accessible place on your computer.
3. The file MDInterface.h provides a list of function that will be available later from Labview.

Interface description

The Mechanical Devices Labview interface provides the following capabilities to the Labview users:

1. ReadMI – provides the ability to read a value from the device into Labview. The function input and output are:
    a. rMINumber – the field's number of the target field to read.
    b. rIPAddress – the IP address of the device.
    c. rPortNumber – the port number of the device.
    d. Return value – the field's value in 0.1 steps.

2. WriteMI – provides the ability to write a value into one of the fields of the device. The function input and output are:
    a. rMINumber – the field's number of the target field to write.
    b. rMIValue – the field's new value.
    c. rIPAddress – the IP address of the device.
    d. rPortNumber – the port number of the device.
    e. Return value – none.

3. ReadMB – provides the ability to read a button state from the device into Labview. The function input and output are:
    a. rMBNumber – the button's number to read the state from.
    b. rIPAddress – the IP address of the device.
    c. rPortNumber – the port number of the device.
    d. Return value – the button's state(0/1, unpressed/pressed).

4. WriteMB – provides the ability to write a state into one of the buttons of the device. The function input and output are:
    a. rMBNumber – the button's number of the target button to write.
    b. rMBValue – the button's new state.
    c. rIPAddress – the IP address of the device.
    d. rPortNumber – the port number of the device.
    e. Return value – none.

Connecting the functionality to Labview project

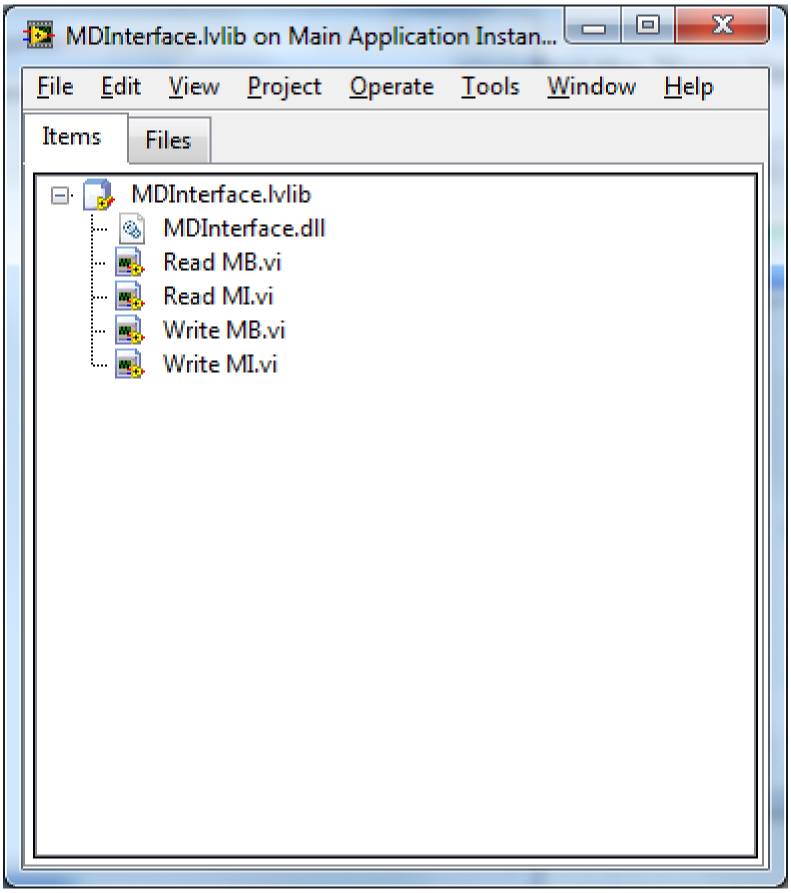
In order to start using the Labview interface functionalities, you will first have to import the library into Labview. The way to do that is to follow the following steps:

1. Start your Labview.
2. Create a new project or open an existing one.
3. From the Project Explorer window choose:
   Tools -> Import -> Shared Library (.dll)…
4. Select the "Create Vis for a shared library" radio button and press the "Next" button.
5. In the "Shared Library (.dll) File" text box choose you MDIterface.dll file.
6. In the "Header (.h) File" choose your MDInterface.h file.
7. Press the "Next" button and in the following screen press the "Next" button again.
8. In the "Select functions to Convert" screen, check the functionality you want to add to your Labview project. The default state is to check all the interface functions. Press the "Next" button.
9. Choose the library name to use inside your Labview project. If you want to create a copy of the interface in your project, check the "Copy the shared library file to the destination directory" check box. Press the "Next" button.
10. Select the "Error Handling" for your project and press the "Next" button.
11. Configure the Vis and controls as you would like to use them in your project and press the "Next" button.
12. Review the "Generation Summery" and press the "Next" button.
13. Press the "Finish" button.

The interface is ready to be used from your Labview project.

Using the interface from Labview

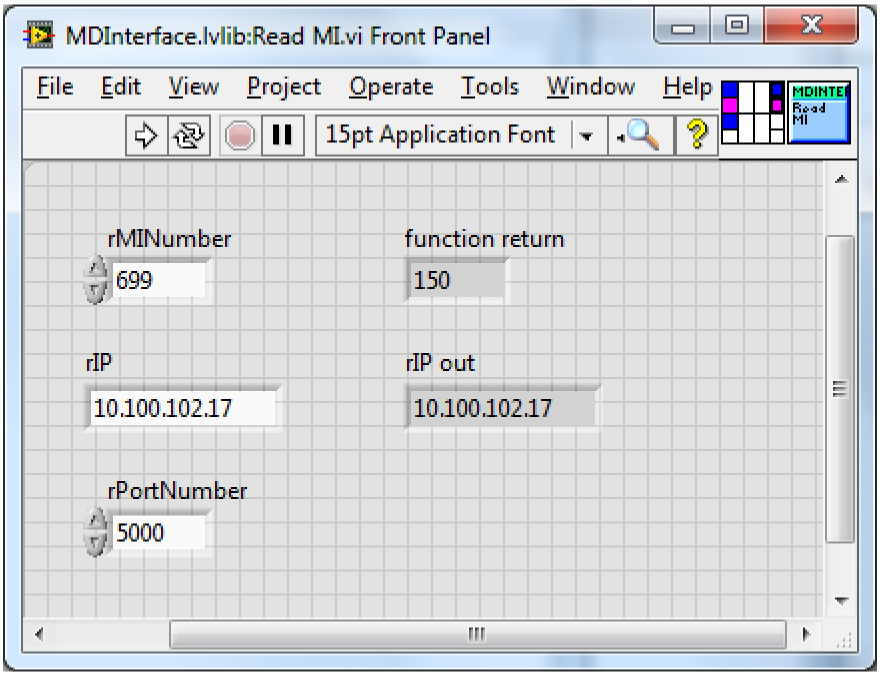
After attaching the interface to Labview, you should be able to access the library and get the following VIs in it:



Double clicking one of the new Vis will give you the ability to communicate with the device, read/write values to fields, read/change the buttons states and get indications from the device.

You can use those Vis and the interface library in your existing projects or directly from a new project.

For example, double clicking the ReadMI.vi will open the following window:



MDInterface.lvlib:Read MI.vi Front Panel

rMINumber 699

function return 150

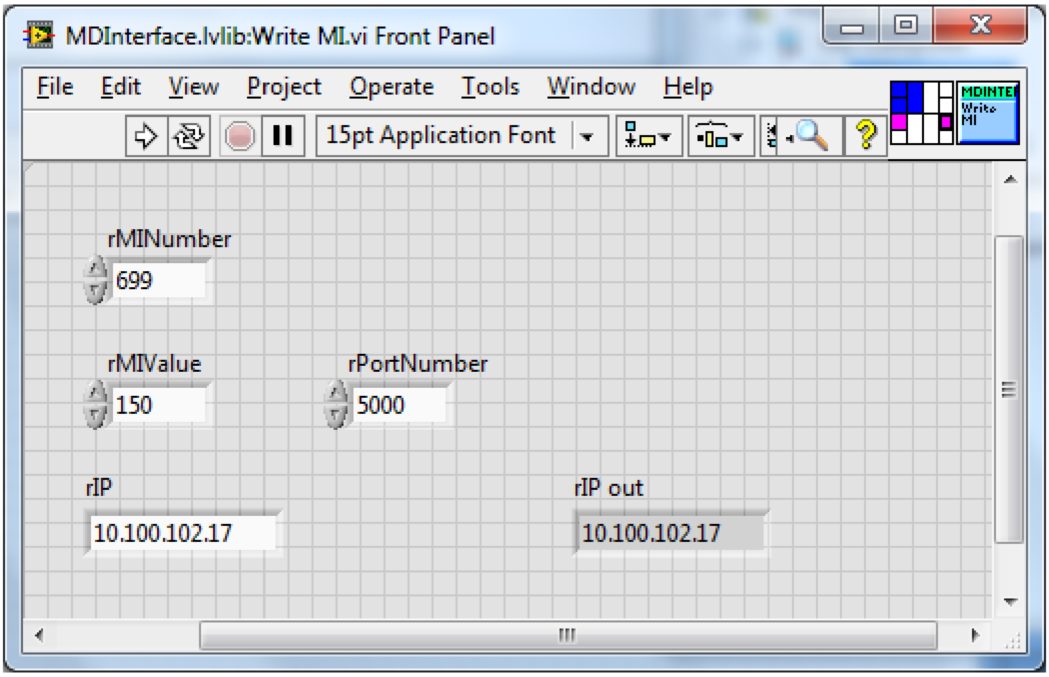
rIP 10.100.102.17

rIP out 10.100.102.17

rPortNumber 5000

You can change the values and press the "Run" button to read values from the device.

Double clicking the WriteMI.vi will open the following window:



MDInterface.lvlib:Write MI.vi Front Panel

rMINumber 699

rMIValue 150

rPortNumber 5000

rIP 10.100.102.17

rIP out 10.100.102.17

Errors and limitations

In case of an invalid access to a field or button number, the interface will ignore the read/write request and will return 0, in case of reading.

In case of invalid value range access to a field or button, the interface will ignore the request. The range of values for each field is pre defined in the device.

Fields and Buttons numbers

In order to get the full list of MI and MB numbers on your specific device, please contact Mechanical Devices with your device details.