

# **ZM237x VBA Sample Program Instruction Manual**

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## 1 Outline

“VBA sample program” is a sample program which performs remote measurement of the LCR Meter ZM2371/ZM2372/ZM2375/ZM2376.

The recommended system requirements are the following.

- OS: Windows XP/7
- Microsoft Office Excel: 2007

## 2 Preparation of VISA

The sample program uses VISA library.

It is necessary to set up VISA before the sample program is used.

The operation of the sample program is tested with the following VISA drivers.

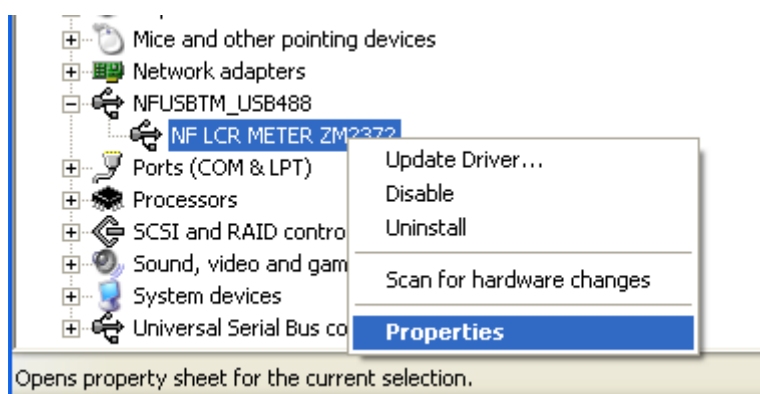
- NI-VISA Ver 5.0 ~ 5.2

For the latest driver and the setup method, ask to each manufacturer.

### ○ When "NF USBTMC Driver" is already installed

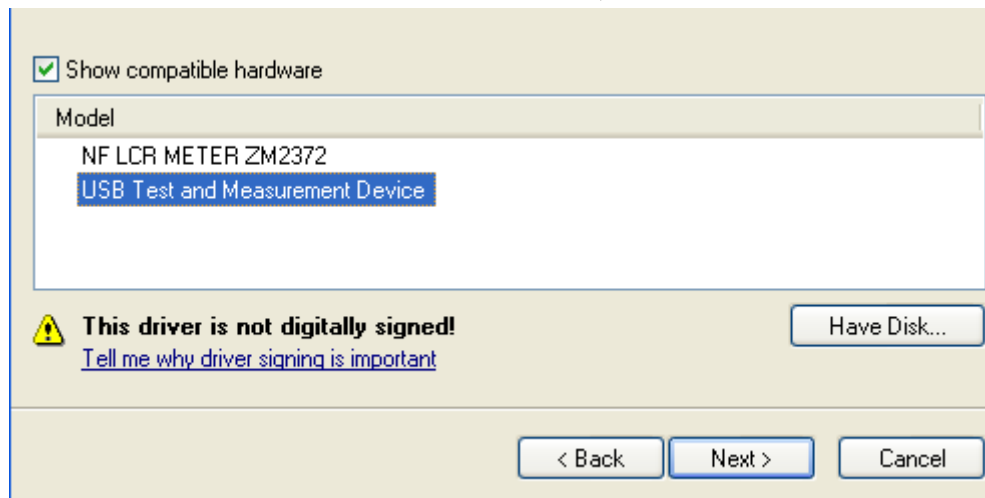
After connecting the ZM2371/ZM2372/ZM2375/ZM2376 with a personal computer (PC), switch the driver according to the following steps in the Device Manager.

- a) Right-click on the [NF LCR METER ZM237x] under the [NFUSBTM\_USB488], and select [Properties].



- b) Launch the [Hardware Update Wizard] by clicking on [Update Driver] button in the [Driver] tab.
- c) Check the [Install from a list or specific location (Advanced)], and click on [Next].
- d) Check the [Don't search. I will choose the driver to install.], and click on [Next].

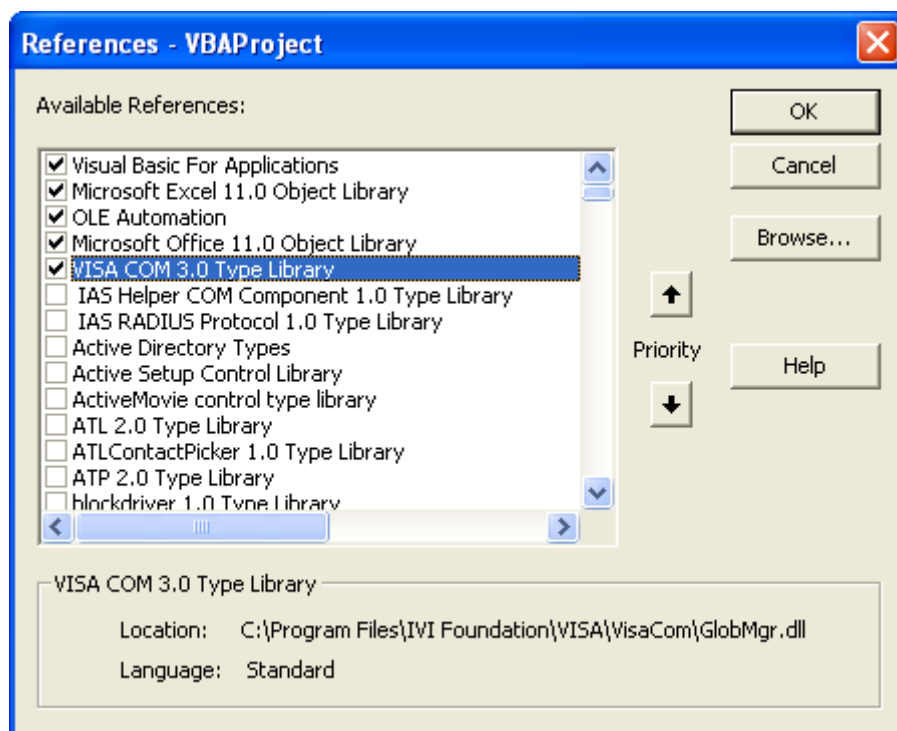
- e) Select the **[USB Test and Measurement Device]**, and click on **[Next]**.



- f) When “Completing the Hardware Update Wizard” is displayed, the setting is completed. Click on the **[Finish]** button.

- **When you newly make the program by the Excel VBA.**

Open the **[Visual Basic Editor]** of the Excel, select **[References]** from the **[Tool]** menu, and add the needed library.



### **3 The Operation Method of each VBA Sample Program**

These are sample programs that receive the measured data after transmitting the trigger command to **ZM2371/ZM2372/ZM2375/ZM2376** by using the Excel VBA.

#### **3-1 Setting of Security Level**

The security level of macro is set up in the following procedures. (It only first time.)

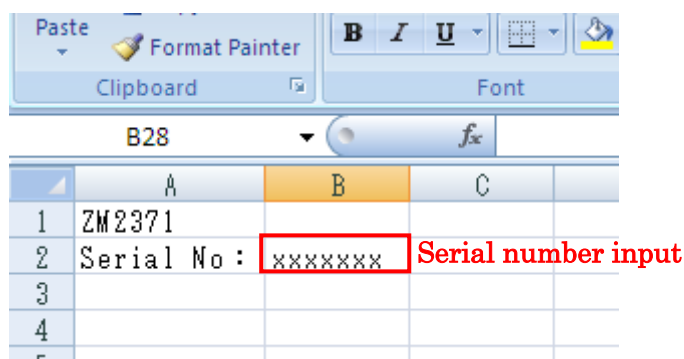
1. Sample\_ZM237x.xlsm is opened.
2. Click on **[Options]** button on the side of “ **Security Warning Macros have been disabled** ”
3. Select **[Enable this content]**, and click on the **[OK]** button.

### 3-2 USB\_sample\_Zm2371 / Zm2372 / Zm2375 / Zm2376

#### a) Serial Number Setting

1. Connect the instrument to the USB connector of the PC using USB cable, and turn on the power of instrument.
2. Select **[SYSTEM]** on the front panel, and select “**USB**” of **[INTERFACE]**.
3. Confirm the “**SN**”(Serial number).
4. Input the confirmed serial number into “**Serial No**” sheet of Excel.

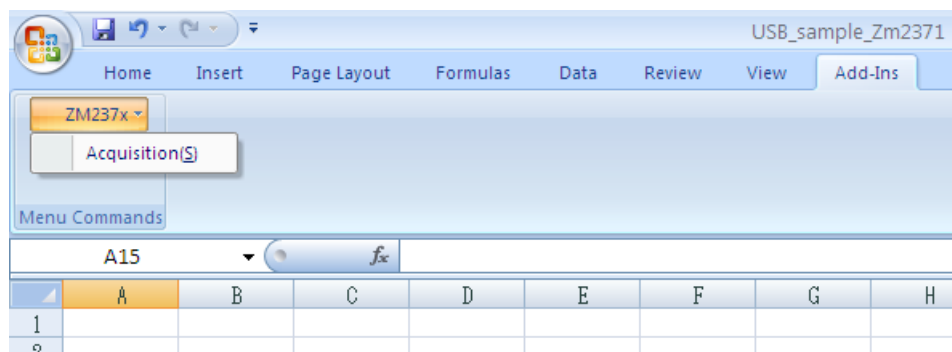
When the “**Serial No**” sheet is deleted, the data acquisition by the USB cable becomes impossible.



#### b) [Acquisition] Start

Select “**Sheet1**”, and click on **[Acquisition]** on the **[ZM237x]** menu in the **[Add\_Ins]** tab of the menubar. The trigger is transmitted every time the space key is pressed, the acquisition data is input to an active cell, and an active cell falls by one step. The name change and the addition of Sheet are possible.

When data acquisition with the space key is ended, click **[Acquisition]** from the **[ZM237x]** menu again. Data acquisition with the space key is active when the check is attached to the left of **[Acquisition]** menu.



c) Saving a File

When saving a file after the measurement ends, select **[Save As]** from **[Office button]**.

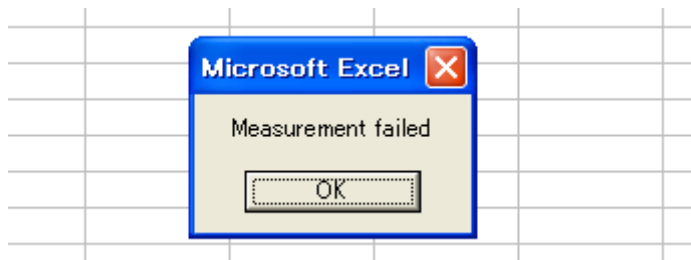
- ★ Please confirm the following items if the following messages are displayed while acquiring data.

- Connection failed



- Power switch
- Connection of USB cable
- Setting of serial number
- Interface setting of instrument
- File type(Sample\_ZM2371 , ZM2372 , ZM2375 or Zm2376)
- VISA

- Measurement failed



- Power switch
- Connection of USB cable

### 3-3 GPIB\_sample\_Zm237x

This sample program is a sample using **GPIB controller “ GPIB-USB-HS ”** of National Instruments Corporation. The driver is needed for the use of “ **GPIB-USB-HS** ”. Please install “ **NI-488.2** ” according to “ **Installation Guide** ” of the attachment.

a) Setting of GPIB address

1. Connect the instrument to the PC using GPIB cable, and turn on the power of instrument.
2. Select **[SYSTEM]** on the front panel, and set the **[INTERFACE]** to “ **GPIB** ”.
3. Set the **[GPIB Address]** to “ **2** ”.

- ✓ In this sample program, the **[GPIB address]** is fixed in “ **2** ”. When you change the address, please refer to “ c) Confirmation of the Content of the Program ”.

b) [Acquisition] Start

The trigger is transmitted every time the **[Measure]** button is clicked, the acquisition data is input to an active cell, and an active cell falls by one step.

c) Confirmation of the Content of the Program

The program can be confirmed, and be changed by opening **[Visual Basic Editor]** from **[Macro]** of **[Tools]** menu. It is also possible to change the GPIB address. Details are described in the program.



### 3-4 RS232\_sample\_Zm237x

#### a) Communication Setting

1. Connect the instrument to the PC using serial interface cable, and turn on the power of instrument.
2. Select **[SYSTEM]** on the front panel, and set the **[INTERFACE]** to “**RS-232**”.
3. Set each parameter as follows:

Data rate : 9600bps

Terminator : LF

Handshake : OFF

- ✓ In this sample program, the COM port number of PC is fixed in “**1**”. When you change the port, please refer to “c) Confirmation of the Content of the Program”.

#### b) [Acquisition] Start

The trigger is transmitted every time the [Measure] button is clicked, the acquisition data is input to an active cell, and an active cell falls by one step.

#### c) Confirmation of the Content of the Program

The program can be confirmed, and be changed by opening **[Visual Basic Editor]** from **[Macro]** of **[Tools]** menu. It is also possible to change the COM port number. Details are described in the program.