

TEXIO
Test and Measurement Solutions
INSTRUCTION MANUAL

For IF-40 Series

Windows API and USB device driver

Ver.3.10

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1. OUTLINE

- The SOFTWARE consists of a device driver for USB and a module(API) for access, and controls IF-41 Series from Windows PC.

2. FEATURES

- Available header and sample files for various languages help easy programming.

3. PRODUCT REQUIREMENT

- PC can be operated by Microsoft XP SP3/VISTA(32bit),and Windows7/8/10(32bit/64bit)
- Use the USB device driver made by TEXIO TECHNOLOGY and it adapts to USB1.1 and USB2.0 full speed.
- Usable languages are VB6.0,VB2008/2010,VBA,VC#,and VC++ (C,C++).
- If you want to use the GP-IB in the sample program. Use National Instruments Corp.
(The NI488.2M Software, please use the Ver.2.8.1 or more.)

4. INSTALLATION OF API

- Please Login to PC by administrator.
- Extract the downloaded file to the appropriate folder, and then run as an administrator by right-clicking Setup32.exe(32bit) / Setup64.exe(64bit) for your environment.
- Run the. Exe Setup ** in the Driver folder in a row, please install the device driver if you are using a USB.
- When using VBA and the VisualBasic6.0 (Excel2000 or more), you can use the API by adding to IF_ **.Bas. When using VisualBasic2005 or higher, you can use the API by adding to IF_ **.vb
- When using the Visual C + +, you can use the API by adding a file to the project IF_ * 0.h, IF_ * 0API_Class.h, of IF_ * 0API_Class.cpp.
- The usage of the API, please refer to the here and so have been prepared sample program.
- Confirmation message to continue or set during installation will appear depending on the OS, but please continue as it is.
- You may specify the folder appear during installation, the installation folder is not created, the file is copied to the system folder.
- . Installation of VC + + runtime library and netFramework4 library will be performed automatically. Run the TEXIO_API32.msi or TEXIO_API64.msi, If you can't install in competition with the system.
- Depending on your environment, run the TEXIO_API32.msi or TEXIO_API64.msi reinstall time.

5. INSTALLATION OF USB DEVICE DRIVER

5-1.for Installation

- Please connect to a PC that is running the USB cable while turn OFF the power switch of the main body.
- Login to PC by administrator.
- Please install and run as administrator by right-clicking Setup32.exe(32bit) / Setup64.exe(64bit) in the Driver folder. Message appears when you do not pass the test of the Microsoft logo in the middle, but please continue as it is.
- Wait for the installation is complete, PC is to recognize by turning ON the power switch of the main body. Please note it may take time depending on the situation and the number of the connected equipment.
- If it is recognized, the detection of new hardware begins. Select the installation automatically, install the device driver according to the message. Message would not have passed the test of the Microsoft logo in the middle comes out, but please continue as it is. Confirmation message to continue or set during installation will appear depending on the OS, but please continue as it is.
- If the computer can not recognize the new hardware due to the security, please go to update the driver from the "Other devices" in the Device Manager.
- Please perform the installation again from the Device Manager if the driver can't be installed successfully.

5-2.for Reinstallation

- Please make sure that the communication with all devices that are using this driver is stopped.
- Please remove the driver from the - "Add or Remove Programs at Control Panel."
(Windows driver Package (WinUSB)USB Driver from TEXIO)
- Reinstall Driver by "Setup**.exe".
- At Device Manager, please make sure that the device you are connected is recognition and working properly.

6. LIST OF FUNCTIONS

6-1.Function name

Function	Detail
int TMI_HandleOpen(char &str , char &ptr)	Open Device Handle
int TMI_HandleClose(int hID)	Close Device Handle
int TMI_TimeOut(int hID , int Time)	Set Timeout value
int TMI_Refresh(int hID)	Buffer Clear
int TMI_ModelNameQ(int hID , char &Model)	Get Model Number
int TMI_Voltage(int hID , char ch , char preset ,double Voltage)	Set Voltage value at Preset / ch.
int TMI_VoltageQ(int hID , char ch , char preset , double &Voltage)	Get Voltage value at Preset / ch
int TMI_Current(int hID , char ch , char preset , double Current)	Set Current value at Presert / ch
int TMI_CurrentQ(int hID , char ch , char preset , double &Current)	Get Current value at Presert / ch
int TMI_MainOutput(int hID , char onoff)	Set Main Output status
int TMI_MainOutputQ(int hID , char &ans)	Get Main output status
int TMI_Delay(int hID , char onoff)	Set Delay Enable
int TMI_DelayQ(int hID , char &ans)	Get Delay status
int TMI_OutputSel(int hID , char ch , char onoff)	Set OutputSelect status
int TMI_OutputSelQ(int hID , char ch , char &ans)	Get OutputSelect staus
int TMI_TrackingOnOff(int hID , char onoff)	Set tracking status
int TMI_TrackingOnOffQ(int hID , char &ans)	Get tracking status
int TMI_TrackingMode(int hID , char mode)	Set tracking mode
int TMI_TrackingModeQ(int hID , char &ans)	Get tracking mode
int TMI_TrackingGroup(int hID , char ch ,char TrackingSet)	Set Tracking Group settings
Int TMI_TrackingGroupQ(int hID , char ch ,char &ans)	Get Tracking Group settings
int TMI_TrackingData(int hID , char ch , char va , double Data)	Set Tracking Group data
int TMI_TrackingDataQ(int hID , char ch , char va , double &Data)	Get Tracking Group data
int TMI_DelayTime(int hID , char ch , double Data)	Set Delay time
int TMI_DelayTimeQ(int hID , char ch ,double &Data)	Get Delay time
int TMI_Display(int hID , char ch)	Set Display mode
int TMI_DisplayQ(int hID , char &ans)	Get Display mode
int TMI_Preset(int hID , char preset)	Set Preset number
int TMI_PresetQ(int hID , char &ans)	Get Preset number
int TMI_MoniDataQ(int hID , char ch ,double &Voltage , double &Current , char &cv_cc)	Get Monitor data
int TMI_AdrQ(int hID , char &ans)	Get current system address
Int TMI_RemoteLocal(int hID)	Go to Local
Int TMI_LocalRockOut(int hID)	Go to Rock out
Int TMI_DataBackUp(int hID)	Save settings to the memory
Int TMI_SRQEnable(int hID , char onoff)	Set Service request
int TMI_AllPresetQ(int hID , double &Preset)	Get Preset data
int TMI_AllPresetQS(int hID , char &Preset)	Get preset data (String)
Int TMI_Out(int hID , char &str)	Send text data
Int TMI_In(int hID , char &Query)	Get text data

7. DEVICE CONTROL FUNCTIONS

7-1. TMI_HandleOpen

Function: Device Open.

format: int TMI_HandleOpen(char &str , char &ptr)

parameter:

- model
Char[] = "PW-A"
- Set
Char[] = Interface:PC Address:System Address"
Interface= "DEV0" GP-IB Board0
"USB" USB
"COM1" COM port=COM1

Example

"DEV0:3:1" GPIB Board0, PC Address = 3, System Address = 1
"USB:2:3" USB, PC Address = 2, System Address = 3
"COM3:0:2" COM3, System Address = 2

Return:

Value: Deice ID

- 1 — Device Error
- 2 — Timeout Error
- 3 — Parameter Error
- 1~ — Device ID

Example(VBA):

hID = TMI_HandleOpen("PW-A","DEV0:3:1") 'GPIB Board0, PC Address = 3, System Address = 1

7-2. TMI_HandleClose

Function :Close Device

Format : int TMI_HandleClose(int DeviceID)

Parameter:

- DeviceId
Opened Device ID.

Return:

- 0 — Complete
- 1 — Device Error
- 2 — Timeout Error

Example(VBA):

i = TMI_HandleClose(hID) 'Close Device

7-3. Send TEXT

int TMI_Out(int hID , char &str)

Function : TMI_Out

Parameter: int hID: Device ID
char &str: Send TEXT Message

Return:

- 0 — Complete
- 1 — Device Error
- 2 — Timeout Error

Example(VBA):

i = TMI_Out(hID, "SW1") 'Main OUTPUT -> ON

7-4. Receive TEXT

int TMI_In(int hID , char &buffer)

Function :TMI_In

Parameter: int hID: Device ID

char &buffer: receive buffer

Return:

- 0 — Complete
- 1 — Device Error
- 2 — Timeout Error

Example(VBA):

Dim buffer as string

Dim i as integer

i = TMI_Out(hID, "ST4") 'Request Monitor and status

Buffer = Space(128)

i = TMI_In(hID, buffer)

NOTE: Secure enough space for the receive buffer.

7-5. Other functions

Please refer sample application.

7-6.Command List

Send commands

No.	Item	Default value	Send command
1	Output voltage setting	0.00V	VA,VB,...,V*
2	Output current setting	0.000A	AA,AB,...,A*
3	Tracking ON/OFF	Off	TO0,TO1
4	Tracking output setting	No tracking in any channels	GA,GB,GC,GD
5	Tracking mode (Absolute or %)	Absolute	TM
6	Tracking voltage setting	100%	EA,EB,EC,ED
7	Tracking current setting	100%	IA,IB,IC,ID
8	MAIN OUTPUT	OFF	SW0,SW1
9	OUTPUT SELECT	All OFF	OA,OB,OC,OD
10	DELAY	OFF	DY
11	Delay time	0.00	DA,DB,DC,DD
12	Voltage/current display	Displaying output A	DS1,DS2,DS3,DS4
13	PRESET	PRESET1	PR0,PR1,PR2,PR3
14	Local	Local	LC1
15	Local lockout	No lock-out	LL1
16	Service request	Disable	SR0,SR1
17	Storing set data	—	MW1

Inquiry commands

No.	Item	Send command	Response command
1	Inquiry about controlled units	PW?	PW
2	Equipment ID	*IDN?	*IDN
3	Connected slave units	SLV?	SLV
4	Status request 0:Read Status	ST0	MS0
	Status request 1:Read Preset	ST1	MS1
	Status request 2:Read Delay and Tracking	ST2	MS2
	Status request 3:Read Model ID	ST3	MS3
	Status request 4:Read Status(Floating value)	ST4	MS4
	Status request 5 Read Preset(Floating value)	ST5	MS5

Please refer Instruction manual for PW-A/PAR-A Series.

8. Cautions on use

- Operation speed of the equipment may be slow when continuous setting an reading under high speed clock of PC. When repeating same setting ON/OFF, setting may be seen as omitted because next setting is made before finishing process. Especially internal status and monitor status reading have few hundred msec reading period. Care of that by all means.
- This API is not in conformity with a power saving function for PC, such as suspend. Under the condition of working the power saving function, operation becomes unstable. Set the PC off from the power saving function when using this API.
- When communicating, different GND electric potential between PC and equipment and no GND cause instability of operation. Use it with equipment GND condition using grounded cable by all means. When using USB hub, must install it with the same GND equipment electric potential.
- Communication is unstable under the condition of noise circumstances, such as motor, inverter, welder, etc. are near by. Select location by all means in order not to receive noise effect for PC, controlled equipment, and communication pass, and confirm operation well before use.
- Depending on using programming language, floating point data by binary operation may not be correctly displayed. When comparing values, confirm data format of using language well, and make programming to get the correct value.
- When controlling power supplies from plural number of programs, processes, and threads, verify well that communications are not overlapped.
- Local Bus Connection with plural slave equipments can cause slow communications. Put interval of transmitting lest communications are overlapped.
- If there is "TMI_API.dll" in the application directory, operation may become abnormal. Delete DLL from application directly and install API correctly.
- If it is running WindowsUpdate you may not be able to install the USB device driver or API. Please install all again from the end of the process of WindowsUpdate.



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