

LabView Driver for CS-3000 / CS-5000

Operation Manual

28-July-2014 1st. edition

Iwatsu Test Instruments Corp.

1. PC Environment

- a . Curve Tracer : Iwatsu CS-3000 and CS-5000 series (here and after, “CS”)
- b . PC/OS : IBM PC / AT or compatibles, Microsoft Windows7
- c . Interface : TCP/IP
- d . LabView : LabView version 7.1 / VISA basis
- e . LabView : Upper version compatibility will be same as the guarantee by National Instruments(NI).

2. Configuration

This VabView driver configures following vi.

2.1. Usage example of vi

- a . CS_Sample(Visa)(*.**).vi
Above shows sample of vi usages for 2.2. and 2.3.

2.2. Basic vi

- a . Send_Rec.vi
Send command and receive result upon command with ?(query).
- b . Text_Send.vi
Send command.
- c . Text_Rec.vi
Receive result upon command with ?(query).
- d . CS_Command_Send.vi
Bind command and setting and send to “CS”.

2.3. Advanced vi

- a . CS_DTWAVE.vi
Transfer yt waveform of “CS”.
- b . CS_Trans_Screen.vi
Transfer/File storage/Display of “CS” screen hardcopy.
- c . CS_Screen_to_File.vi
Transfer/file storage of “CS” display.
- d . CS_ManTrigger.vi
Trigger manually on “CS”.

- e . CS_Setup_to_File.vi
Transfer/Save file of “CS” setup from “CS” to PC.
- f . CS_Setup_from_File.vi
Recall file of “CS” setup from PC to “CS”.

3. Explanation of each vi

3.1 Usage sample of SUB vi

- a. CS_Sample(VISA)(*.**).vi

Above shows sample of vi usages for 2.2. and 2.3.

3.1.1 Function of each SUB vi

This is a sample software using each SUB vi.

Fig-1- in below shows Sample of start-up display.

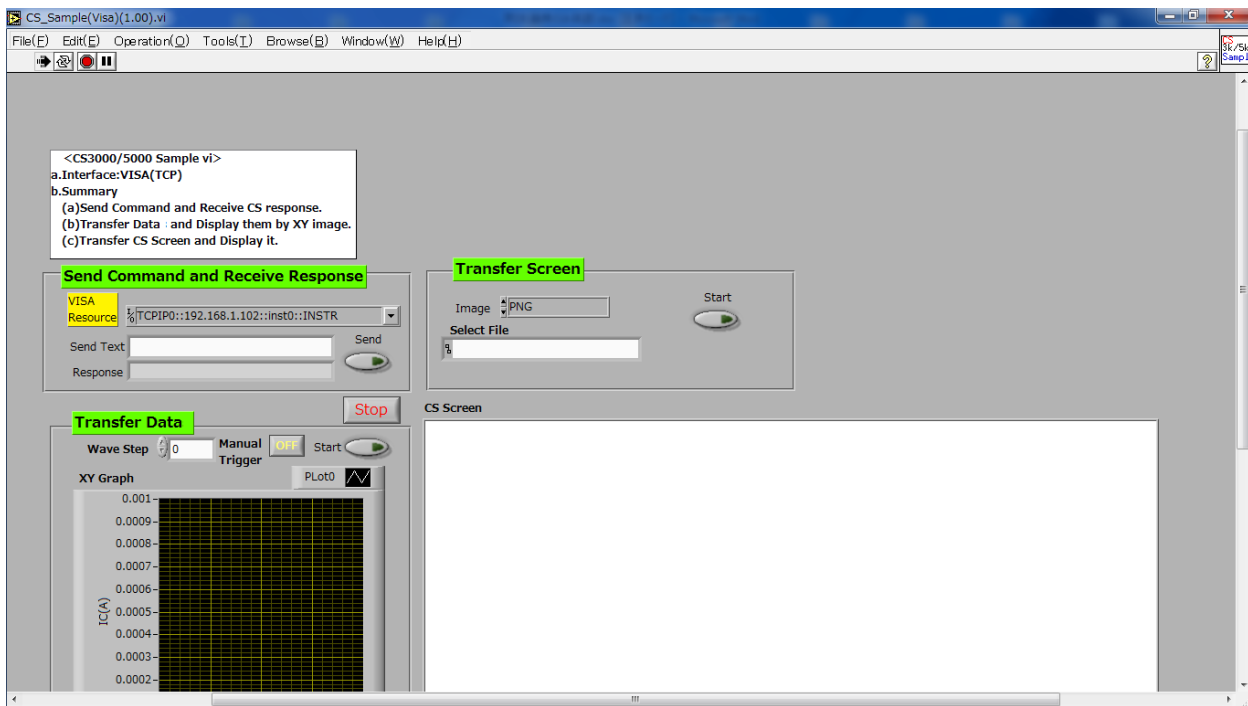




Fig-1- Sample of start-up display

Functions are as follow;

- Send and receive (any of) command.
- Transfer/File storage/Display of “CS” display to PC.
- When trigger on/off, transfer one step of yt waveform (V and I) separately step by step and display xy waveform as bound waveform.

3.1.2 Operation

- a. Set VISA resource name in the box.
- b. Click  (right arrow) to run.
- c. Click  to stop.
- d. <Send Command Send and Receive Response> panel
 - (i) Set “CS” command at <Send Text> box and push <Send>.
 - (ii) When setting <?(query) Command>, <Response> box displays received text(or “STRINGS”).

Example. When setting <Send Text> = *IDN?:

<Response> = IWATSU, <model>, <SerialNo>, <SoftVer>

- e. <Transfer Data> panel

Example. When “CS” displaying Fig-2- as follows;

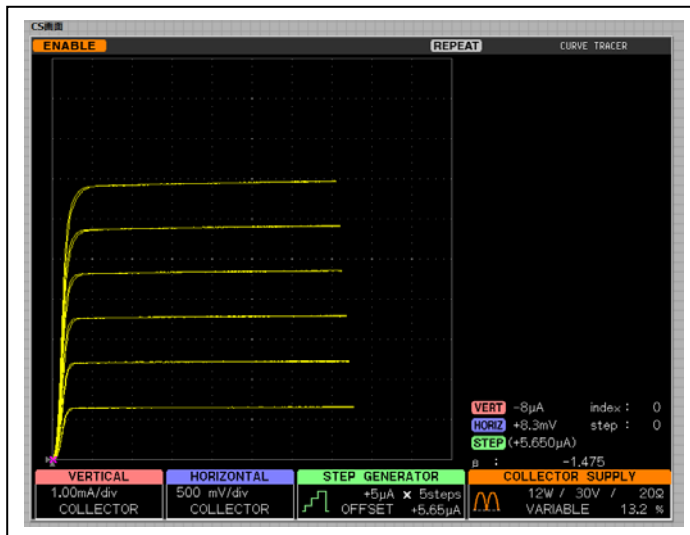
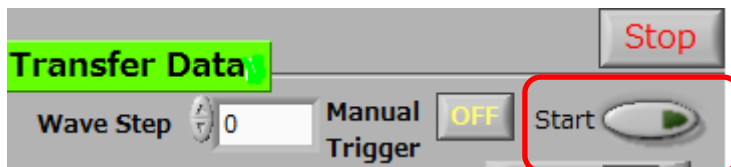


Fig-2- Display example on LCD screen of “CS”

- (i) Set VISA resource name in the box.
- (ii) Set waveform step (0 to 41) and push (start : see following).



Then, extracting VCE and IC waveform data and display as xy at X for VCE and Y for IC basis.

Note) When manual trigger “on”, extract waveform data only after manually triggered.

(iii) Display shows as Fig-3- in the right.

(iv) Operation

Basic waveform operation such as editing axes name or scales, etc. of LabView can be performed.

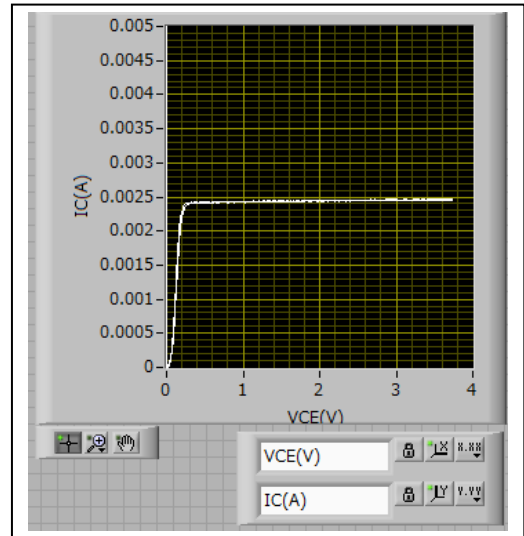


Fig-3- X=VCE / Y=IC display

f. <Transfer Screen> panel

(i) Set related VISA resource name.

(ii) Image (<Transfer format>) = PNG

(iii)  Start

Select file name for storage following FILE SELECT wizard.

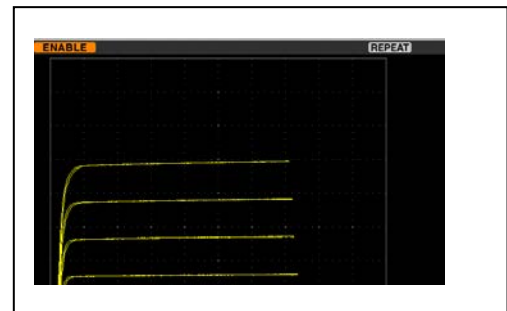


Fig-4- Created PNG image

(iv) PNG image file will be created and display as Fig-4-.

3.2 Detailed explanation of Basic vi

Basic vi are as follows;

a . Send_Rec.vi

Send command and receive result upon command with ?(query).

b . Text_Send.vi

Send command.

c . Text_Rec.vi

Receive result upon command with ?(query).

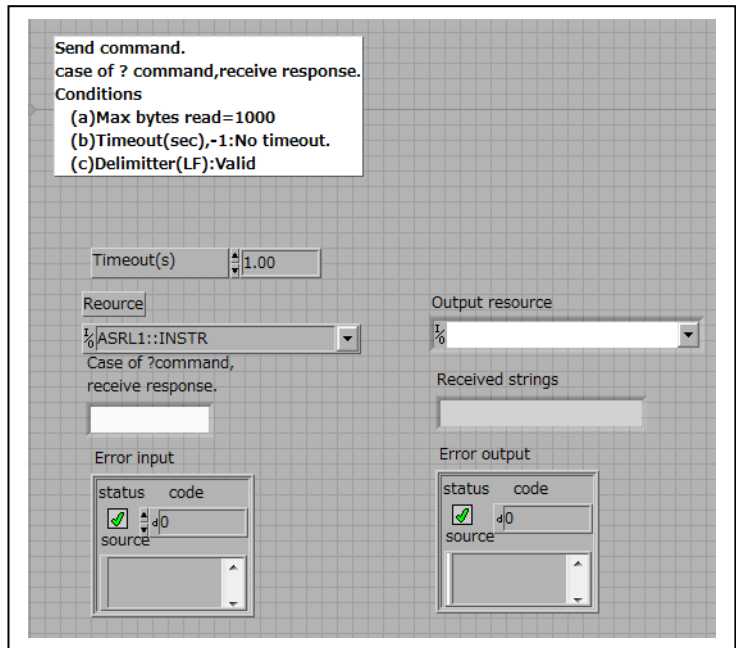
d . CS_Command_Send.vi

Bind command and setting and send to “CS”.

3.2.1 Command send/receive (Send_Rec.vi)

3.2.1.1 Function

Send command. When command with ?(query), receive response.



3.2.1.2 Parameters

a. Input

- (a)Enter CS VISA resource name
- (b)Enter Time out value
- (c)Enter Command

- When command with ? (query), receive STRINGS response from “CS”.
- When command without ? (query), send command.

b. Output

- (a)Output VISA resource name
- (b)STRINGS response from “CS” when command with ?(query)

3.2.2 Send command(Text_Send.vi)

3.2.2.1 Function

Send command

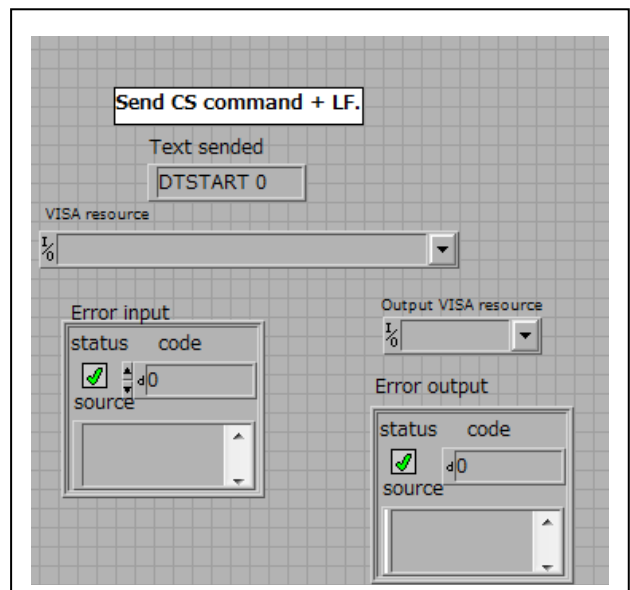
3.2.2.2 Parameters

a. Input

- (a)Enter CS VISA resource name
- (b)Enter Send STRINGS

b. Output

- (a)Output VISA resource name



3.2.3 Receive command(Text_Rec.vi)

3.2.3.1 Function

Receive response by command with ?(query)

3.2.3.2 Parameters

a. Input

- (a)Enter “CS” VISA resource name
- (b)Enter Receive timeout : ms
- (c)Enter Maximum receiving byte
- (d)Enter Delimiter

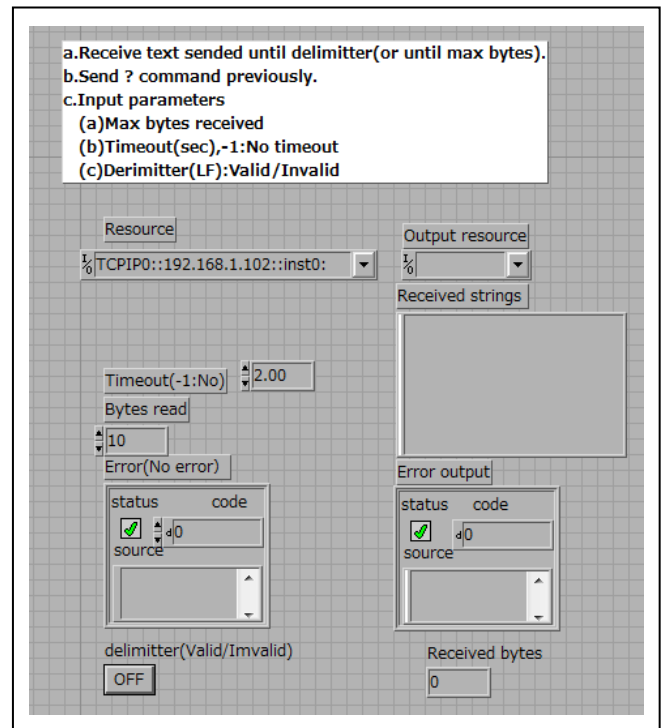
Valid : Receive response completed

When receiving delimiter

Invalid : Read maximum receiving byte

b. Output

- (a)Output VISA resource name
- (b)Reading serial number : receiving STRINGS
- (c)Reading digits of STRINGS : received number of digits



3.2.4 Send command and setting value (CS_Command)

3.2.4.1 Function

Send command and setting value bound adding LF.

3.2.4.2 Parameters

a. Input

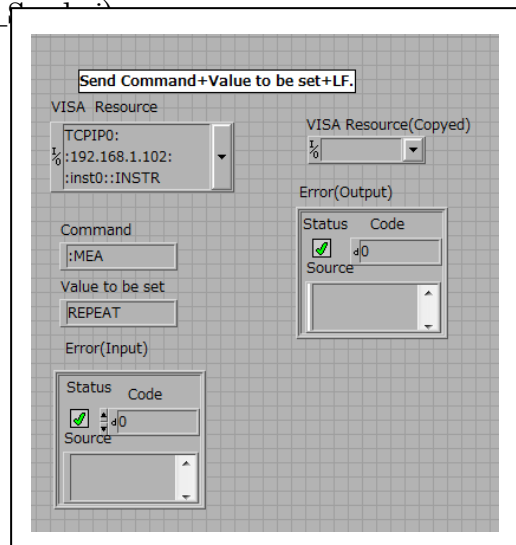
- (a)Enter “CS” VISA resource name
 - (b)Enter command STRINGS
 - (c)Enter setting STRINGS
- Example, Command STRINGS = ”:MEA” and
Setting STRINGS = ”REPEAT”,
send ” :MEA REPEAT<LF>”.

(d)Error (Input)

(Nothing to set.)

b. Output

- (a)Output VISA resource name
- (b)Error output



Note) “CS” Command list is referred in the CS-3000 series [Remote control manual].

3.3 Advanced vi

Advanced vi are as follows:

- a . CS_DTWAVE.vi
Transfer yt waveform of “CS”.
- b . CS_Trans_Screen.vi
Transfer/File storage/Display of “CS” screen hardcopy.
- c . CS_Screen_To_File.vi
Transfer/file storage of “CS” display.
- d . CS_ManTrigger.vi
Trigger manually on “CS”.
- e . CS_Setup_to_File.vi
Transfer/Save file of “CS” setup from “CS” to PC.
- f . CS_Setup_from_File.vi
Recall file of “CS” setup from PC to “CS”.

3.3.1 Transfer yt waveform (CS_DTWAVE.vi)

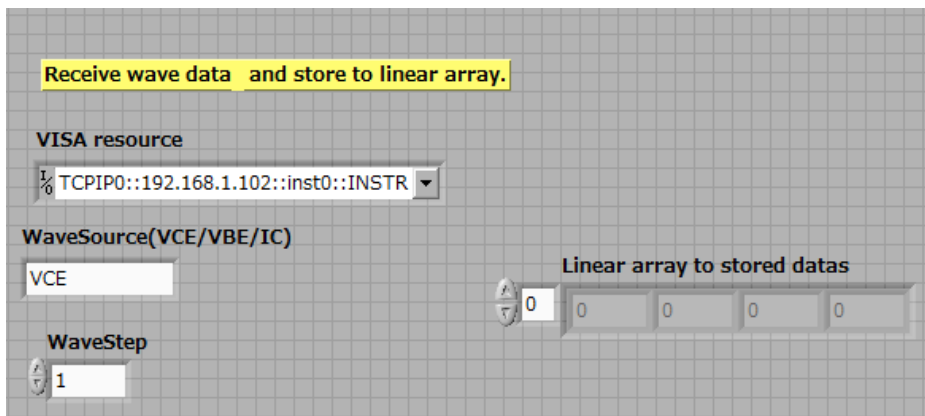
3.3.1.1 Function

Transfer yt waveform data assigning VCE, IC or VBE at 1st. dimension linear array.◦

3.3.1.2 Parameters

a. Input

(a)Enter CS VISA resource name



(b)Enter WaveSource :

VCE, IC or VBE

(c)Enter WaveStep :

Enter a number from 0 to 41

b. Output

(a)Receiving data array : Transferred data array

c. Operation

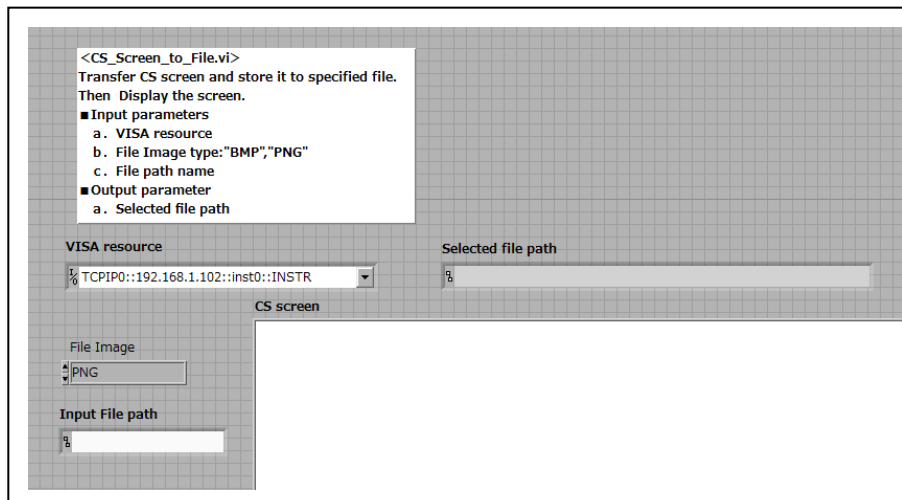
Transfer one step of yt waveform (V and I) separately step by step and display xy waveform as bound waveform (please refer 3.1).

3.3.2 Transfer/File storage/display of “CS” screen display (CS_Trans_Screen.vi)

3.3.2.1 Function

Transfer, Store in the file and display of “CS” screen hardcopy

Display size : 800(H)dots x 600(V)dots



3.3.2.2. Parameters

a. Input

(a)Enter ”CS” VISA resource

(b)Enter file image type :

Select from PNG or BMP

(c)Enter picture file name :

Input file name or select from file dialog

b. Output

(a)Selected path name

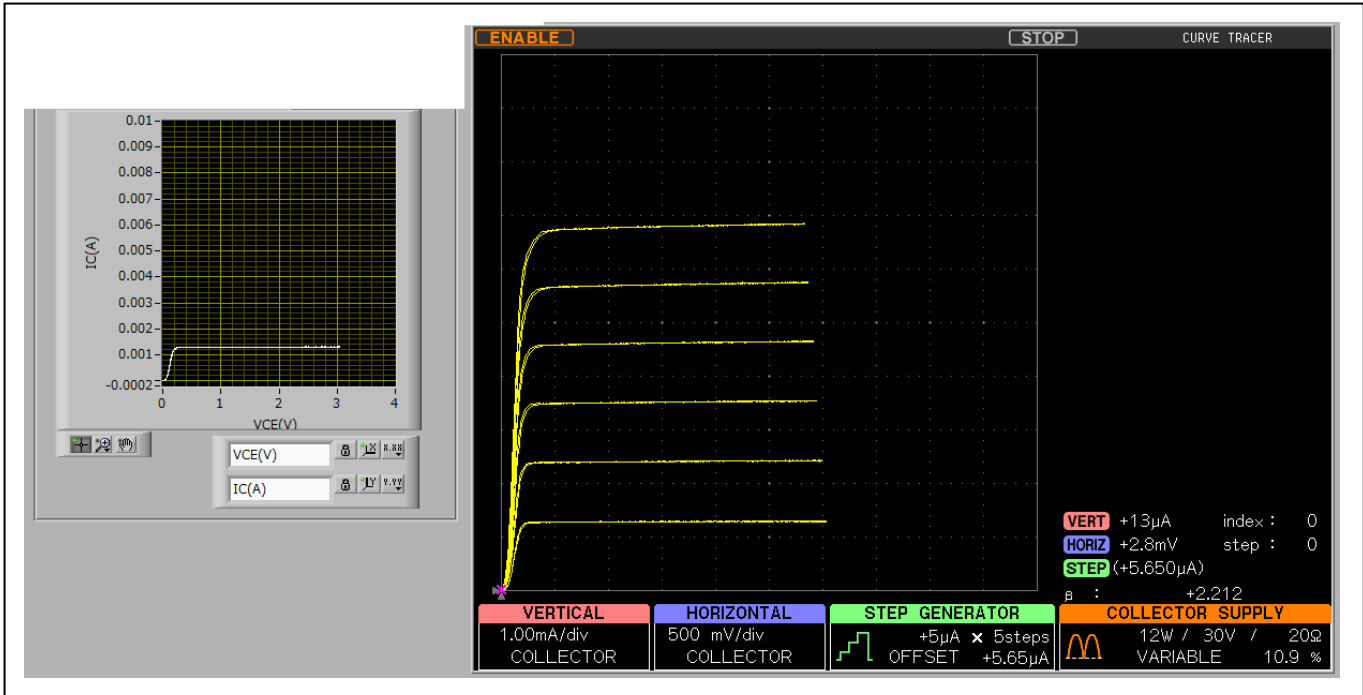
Stored file name will be indicated in this box.

(b)“CS” screen display

Opening set path name at (a) in above and display screen hardcopy.

3.3.2.3 Additional command (CS_Screen_to_File.vi)

This command perform the same function of 3.3.2. (CS_Trans_Screen.vi) and the only different from CS_Trans_Screen.vi which does not display “CS” screen.



< Transferred waveform data and transferred screen hardcopy >

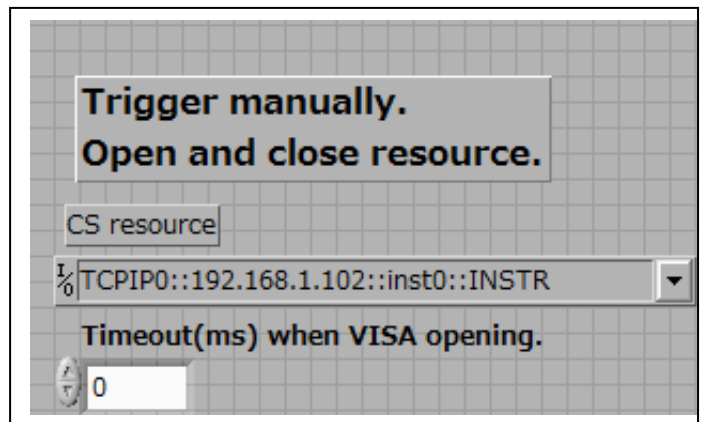
3.3.3 Manual triggering (CS_ManTrigger.vi)

3.3.3.1 Function

Trigger manually on “CS” and wait for trigger completed

3.3.3.2 Parameters

- Enter “CS” VISA resource name
- Enter VISA opening time out : (ms)



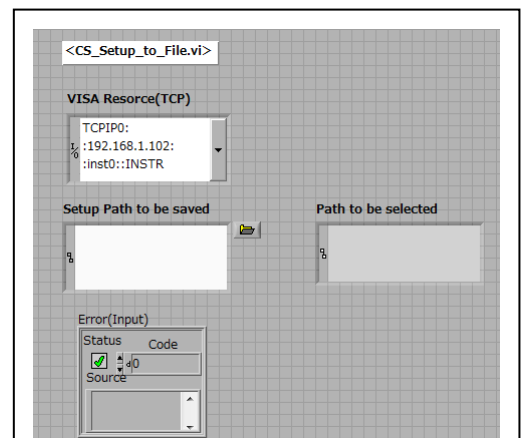
3.3.4 Transfer panel setup / File storage to PC (CS_Setup_to_File.vi)

3.3.4.1 Function

Transfer “CS” setups and store in the PC file.
Transfer sequence is [“CS” setup from “CS” to PC and store into the PC file].

3.3.4.2 Parameters

- Input
 - Enter “CS” VISA resource name
 - Enter setup path :



Key in file path or select from file dialog.

(c)Error(Input)

(Nothing to set.)

b. Output

(a) Setup file name in the selected storage path

Stored file name will be indicated in this box.

(b)PC setup file into set file path.

3.3.5 Recall PC setup file to “CS” (CS_Setup_from_File.vi)

3.3.5.1 Function

Recall PC setup file (which stored in 3.3.4) and transfer to “CS”.

Transfer sequence is [PC setup file to PC to “CS” setting]

3.3.5.2 Parameters

a. Input

(a)Enter “CS” VISA resource name

(b)Enter setup path :

Key in file path or select from file dialog.

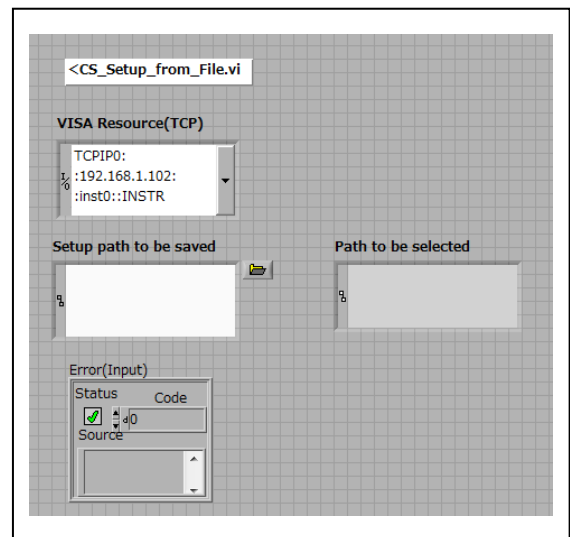
(c)Error(Input)

(Nothing to set.)

b. Output

(a)Setup file name in the selected storage path

Stored file name will be indicated in this box.



<END of MANUAL>