How to record i-8017H 's Ch.1 to Ch.4 voltage input in a user allocated RAM memory in the Wincon-8xx7 ? The sampling time is one record every 0.01 second. The record period is 1 to 10 minutes. Then PC can download this record and display it as a trend curve diagram by M.S. Excel.

The "Whmi_13.pia" can run in Wincon-8xx7 / 8xx6 with driver version of 3.36 or later version.

> New drive: http://www.icpdas.com/products/PAC/i-8000/isagraf-link1.htm
> "whim_13.pia" resides at W-8xx7 CD-ROM:\napdos\isagraf\wincon\demo\ or
> ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/demo/ or
> www.icpdas.com – FAQ - Software – ISaGRAF – FAQ057

VB6 - "Demo_5" code at

> W-8xx7 CD-ROM:\napdos\isagraf\wincon\vb6_demo_pc\ or
> ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/vb6_demo_pc/ or
> www.icpdas.com – FAQ - Software – ISaGRAF – FAQ057

If using Web HMI in this demo, the Web HMI codes resides at below location. (Please refer to Chapter 3, 4 and 5 in the "Wincon ISaGRAF Getting Started manual" or
W-8xx7 CD-ROM:\napdos\isagraf\wincon\english_manu\ "getting_started_w8337.pdf")

> W-8xx7 CD-ROM:\napdos\isagraf\wincon\WebHMI_Demo\ or
> ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/webhmi_demo/ or
> www.icpdas.com – FAQ - Software – ISaGRAF – FAQ057

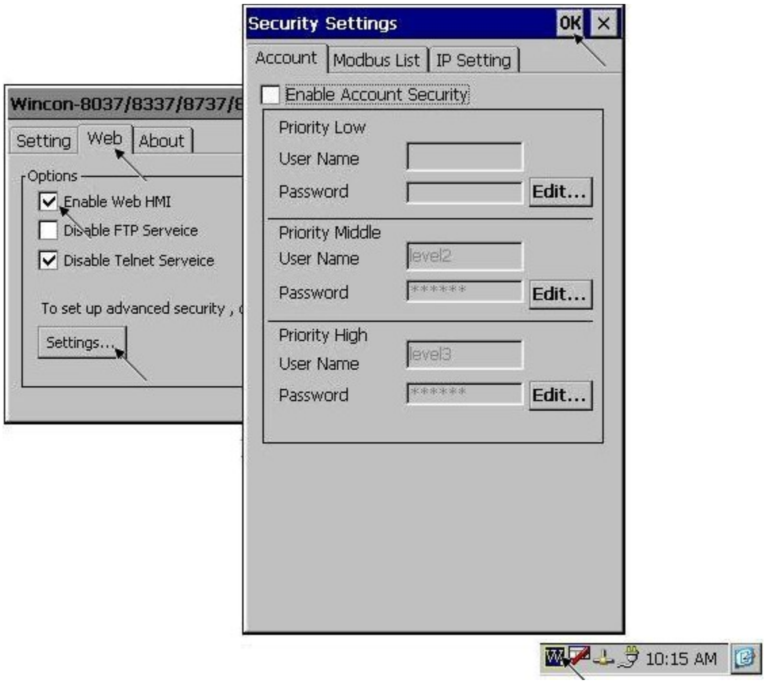
If new c-function of Msg_F , Msg_N , ARY_F_R and AFY_F_W doesn't exist in ISaGRAF in your PC, please visit http://www.icpdas.com/products/PAC/i-8000/isagraf.htm to download the "ICP DAS utilities For ISaGRAF" . Then run "setup.exe" inside it to re-install all new ISaGRAF c-function & I/O boards definition to your ISaGRAF workbench.

We use "Variable array" in this demo program, please refer to Chapter 2.6 or FAQ-039 for more information about "Variable array" .

How to test this demo ?

The following steps is only for using Web HMI as Human-Machine-Interface. If you are using VB 6.0 – “Demo_5” as HMI , please run it (Demo_5.exe) in your PC and only do procedure listed in step 1 , step 3 and step 6 .

1. Please plug one i-8024 in W-8xx7 ’s Slot 2, one i-8017H in Slot 3. Then connect Ch1. to Ch.4 voltage output of i-8024 to Ch1. to Ch.4 of i-8017H. Then power up Wincon, Check “Enable Web HMI” option as below. For demo purpose, please don’t check “Enable Account Security”



Wincon-8037/8337/8737/8

Options

☑ Enable Web HMI

☐ Disable FTP Serveice

☑ Disable Telnet Serveice

To set up advanced security ,

Security Settings

☐ Enable Account Security

Priority Low

User Name:

Password:

Priority Middle

User Name: level2

Password: ******

Priority High

User Name: level3

Password: ******

2. Copy all files of Web HMI ‘s Demo_13 to Wincon ‘s \CompactFlash\Temp\HTTP\WebHMI\ folder by ftp utility (For example, run ftp://10.0.0.103 in Internet Explorer)

Web HMI codes resides at
W-8xx7 CD-ROM:\napdos\isagraf\wincon\WebHMI_Demo\ “whim_13” folder or
ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/webhmi_demo/

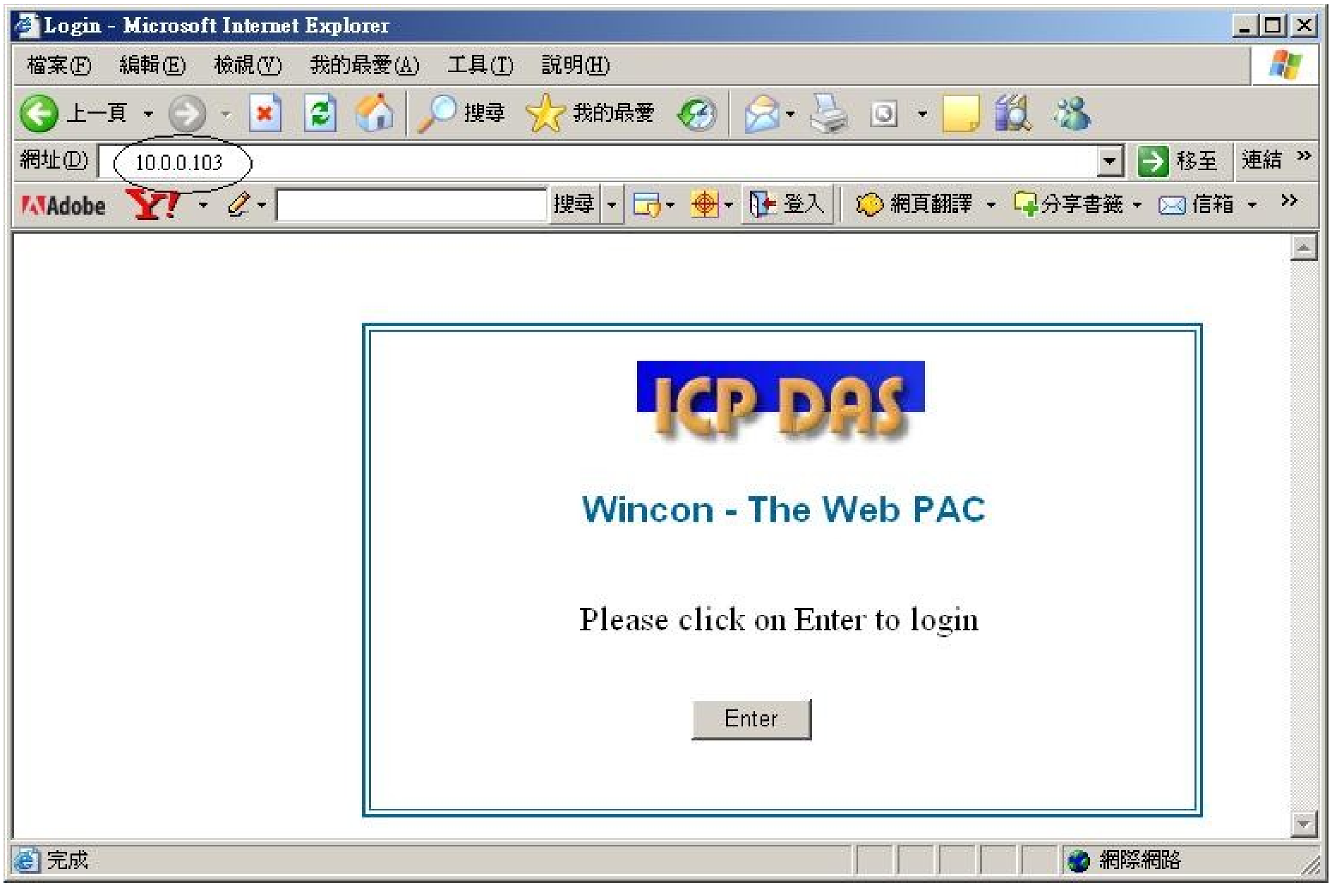
Ther are 7 Files plus 2 folder should be copied to Wincon ‘s \CompactFlash\Temp\HTTP\WebHMI\

Main.htm , menu.htm , index.htm , login.htm , main.dll , login.dll , whim_filter.dll
“img” & “msg” folder

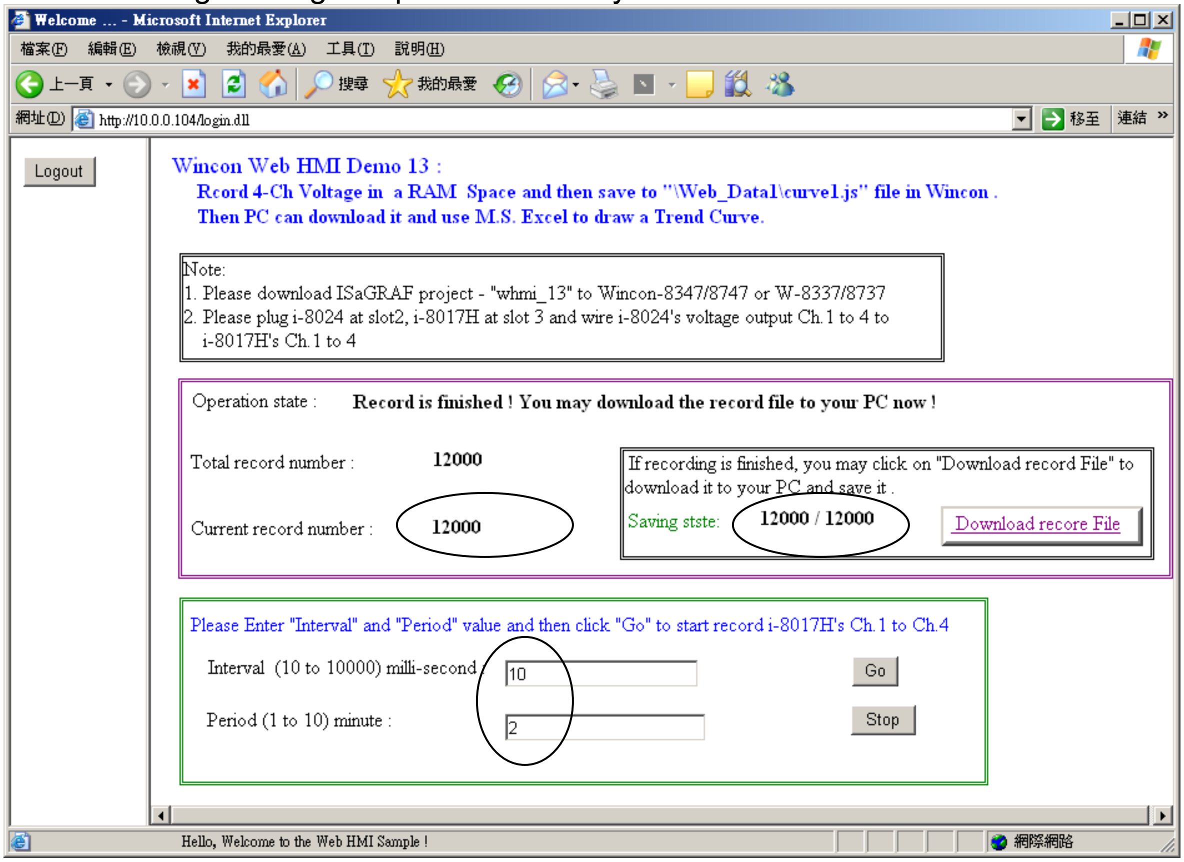
3. Download ISaGRAF project “whim_13” to W-8xx7. (If using Web HMI as HMI, please finish procedure listed in step 2 first, then do step 3)

The “Whmi_13.pia” can only run in Wincon-8xx7/8xx6 (not in I-8xx7). It resides at
W-8xx7 CD-ROM:\napdos\isagraf\wincon\demo\   or
ftp://ftp.icpdas.com/pub/cd/wincon_isagraf/napdos/isagraf/wincon/demo/

4. PC run Internet Explorer (I.E. version shoulde be 5.0 or later version). Enter W-8xx7 IP. If connecting well, click on “Enter”



5. Then please enter proper “Interval” value. Unit is 0.001 second (1 milli-second). For example, if enter 10, it means to store one record every 10 ms. The ”Period” is the time period to record. Unit is minute. Then please click on “Go” to start recording. W-8xx7 will then output different voltage in i-8024 Ch.1 to Ch.4 . If user has finished procedure listed in step 1 – “connect Ch1. to Ch.4 voltage output to Ch1. to Ch.4 of i-8017H” , the i-8017H Ch1. to Ch.4 ‘s voltage input will also change during this period. And they will be recorded.


Welcome ... - Microsoft Internet Explorer
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
上一頁
搜尋
我的最愛
網址(D)
http://10.0.0.104/login.dll
移至
連結
Logout
Go
Stop
Hello, Welcome to the Web HMI Sample !
網際網路

Wincon Web HMI Demo 13 :

Rcord 4-Ch Voltage in a RAM Space and then save to "\Web_Data1\curve1.js" file in Wincon .
Then PC can download it and use M.S. Excel to draw a Trend Curve.

Note:
1. Please download ISaGRAF project - "whmi_13" to Wincon-8347/8747 or W-8337/8737
2. Please plug i-8024 at slot2, i-8017H at slot 3 and wire i-8024's voltage output Ch.1 to 4 to i-8017H's Ch.1 to 4

Operation state : Record is finished ! You may download the record file to your PC now !

Total record number : 12000

Current record number : 12000

If recording is finished, you may click on "Download record File" to download it to your PC and save it .

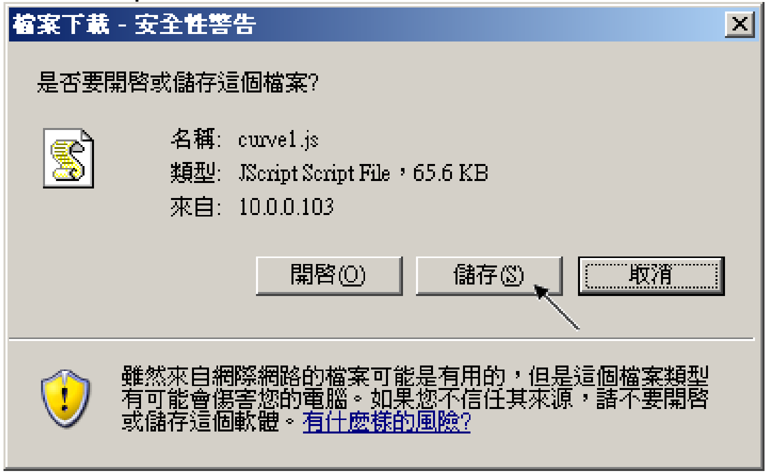
Saving stste: 12000 / 12000 Download recore File

Please Enter "Interval" and "Period" value and then click "Go" to start record i-8017H's Ch.1 to Ch.4

Interval (10 to 10000) milli-second 10

Period (1 to 10) minute : 2

During the recording period, the “Current record number” value will count up. If it reaches the value of “Total record number” , it means recording is finished. Then the ISaGRAF program will store these records to a RAM file automatically. You can see the progress in “Saving state” . If all done, please click on “Download record File” to download this record file to your PC.

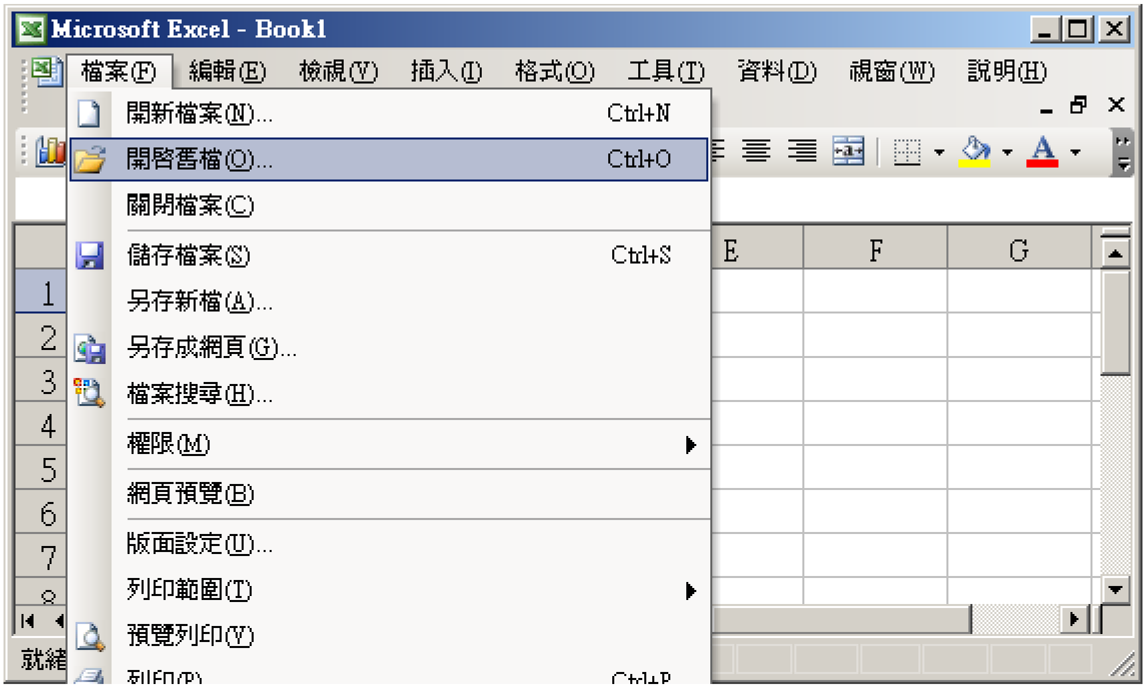


是否要開啟或儲存這個檔案?

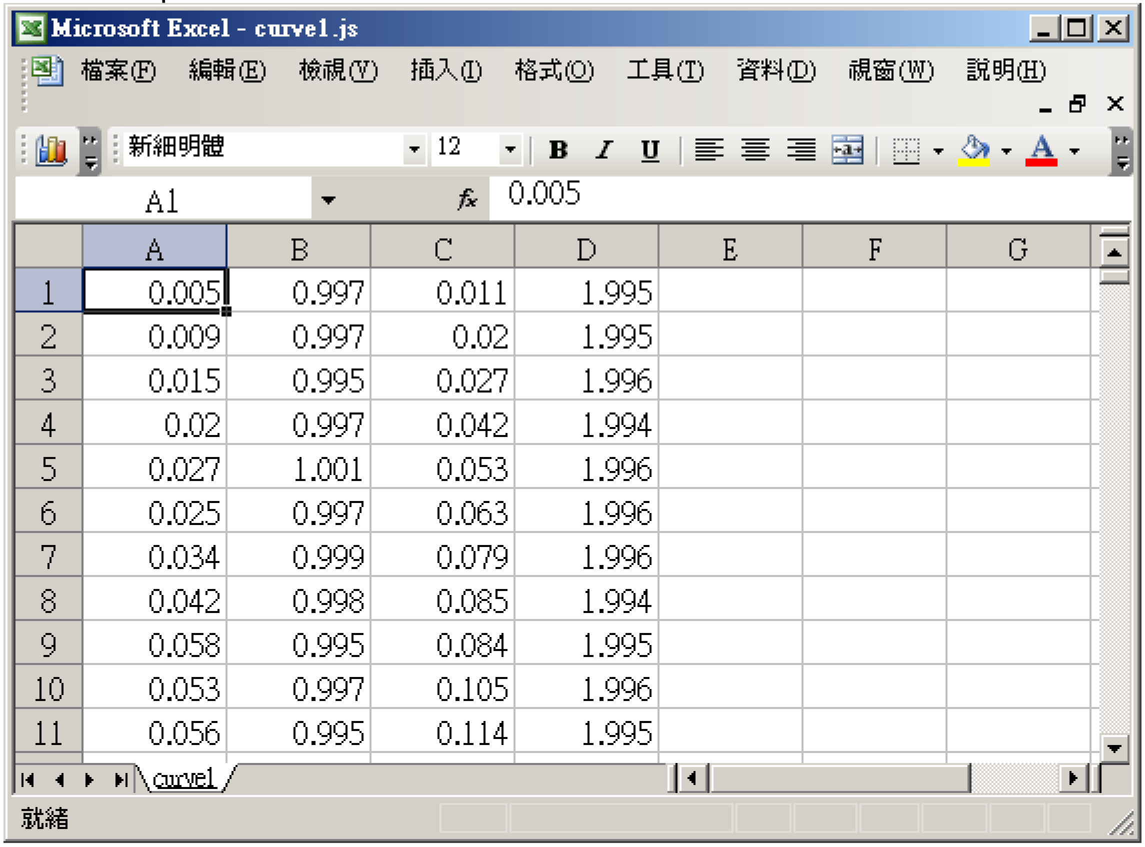
名稱: curve1.js
類型: JScript Script File，65.6 KB
來自: 10.0.0.103

雖然來自網際網路的檔案可能是有用的，但是這個檔案類型有可能會傷害您的電腦。如果您不信任其來源，請不要開啟或儲存這個軟體。有什麼樣的風險?

6. Then please open this record file - “curver1.js” on M.S. Excel.



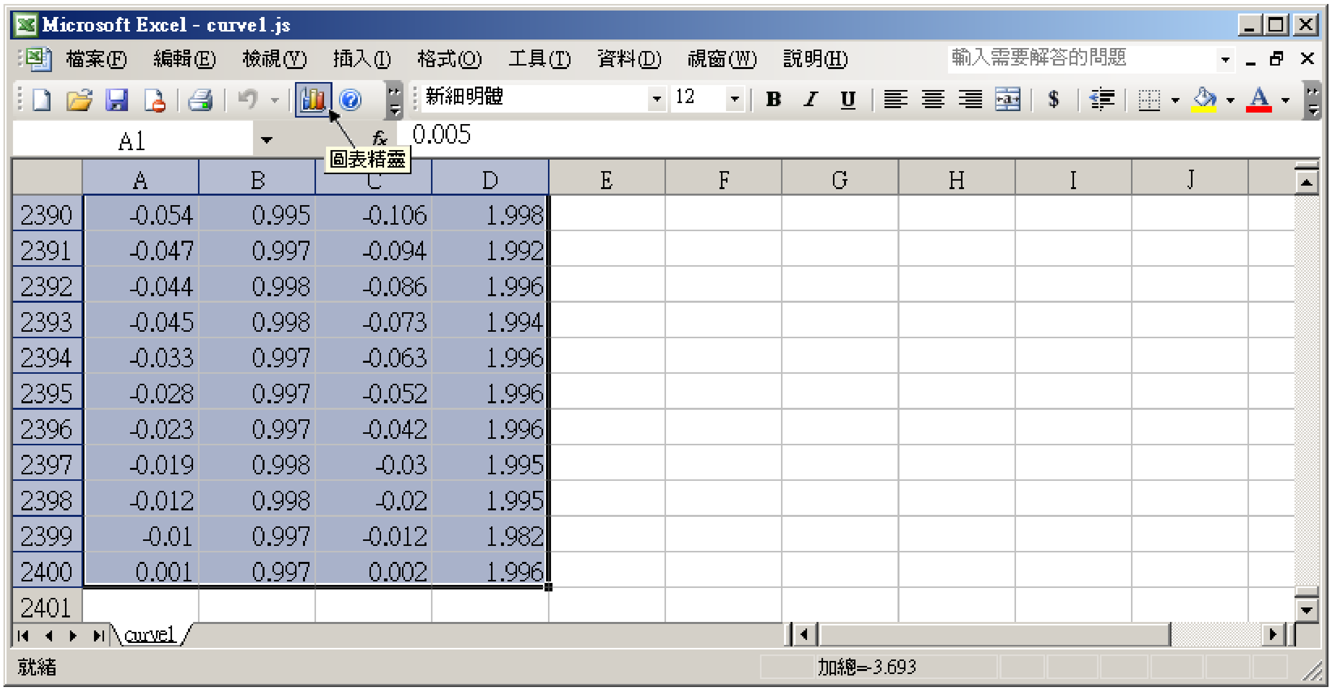
Please click on the first data at the left-top position. Then press and hold in “Shift” , and at the same time press “Ctrl” – “End” . You will see all data been selected.



A1 | 0.005

	A	B	C	D	E	F	G
1	0.005	0.997	0.011	1.995			
2	0.009	0.997	0.02	1.995			
3	0.015	0.995	0.027	1.996			
4	0.02	0.997	0.042	1.994			
5	0.027	1.001	0.053	1.996			
6	0.025	0.997	0.063	1.996			
7	0.034	0.999	0.079	1.996			
8	0.042	0.998	0.085	1.994			
9	0.058	0.995	0.084	1.995			
10	0.053	0.997	0.105	1.996			
11	0.056	0.995	0.114	1.995			

Then click on 📊

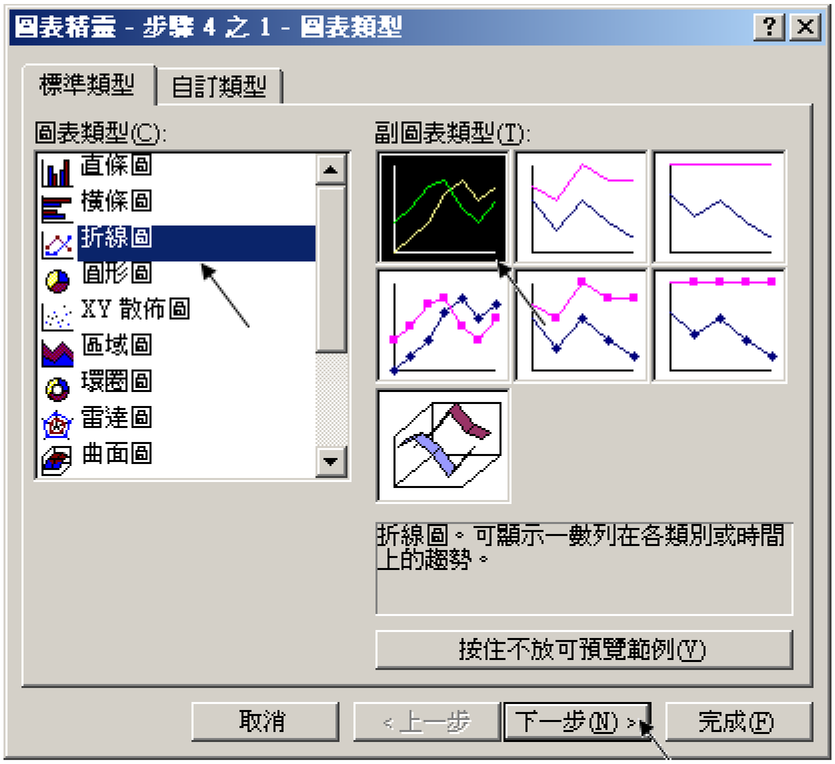

Microsoft Excel - curve1.js
檔案(F) 編輯(E) 檢視(V) 插入(I) 格式(O) 工具(T) 資料(D) 視窗(W) 說明(H)
輸入需要解答的問題
新細明體
12
圖表精靈
curve1
就緒

A1 0.005

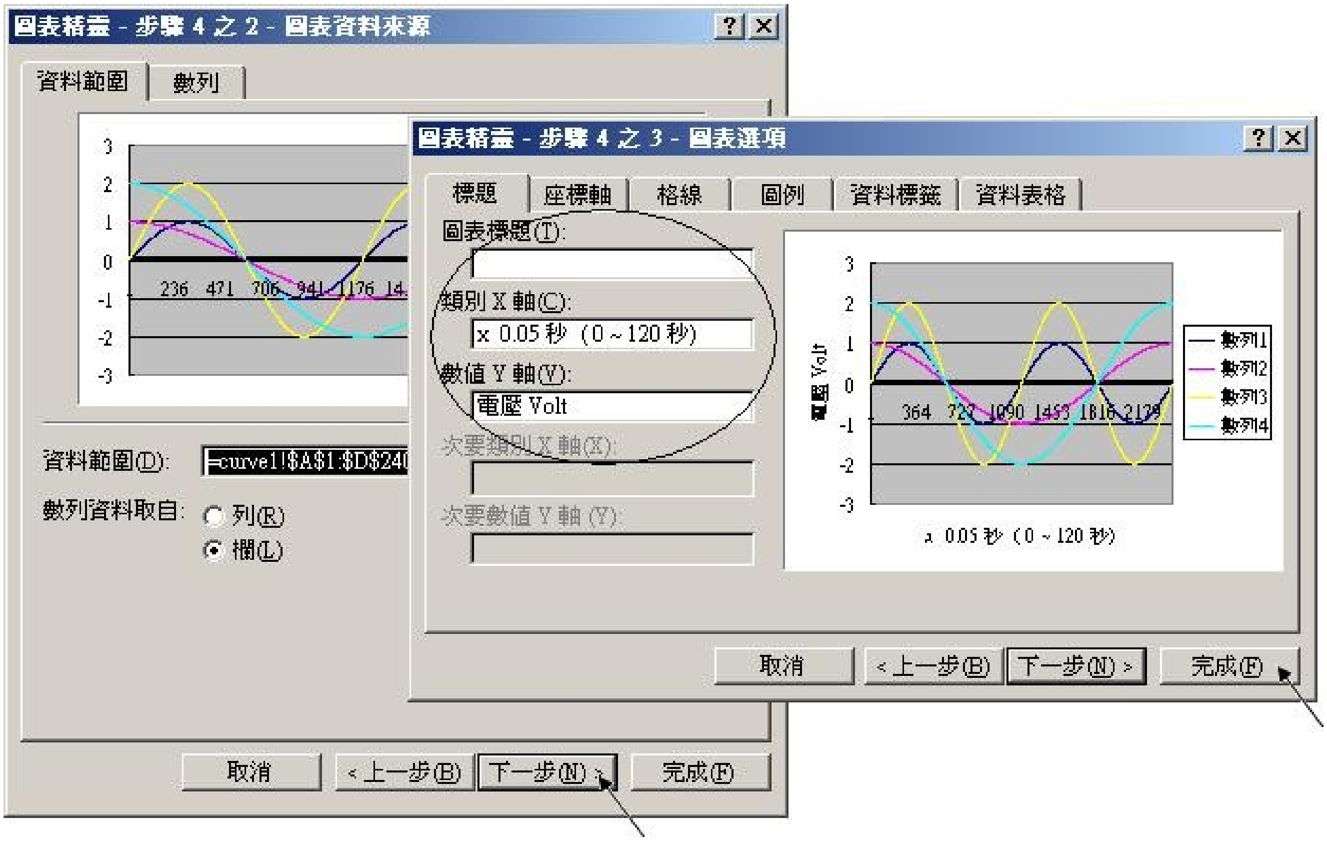
	A	B	C	D
2390	-0.054	0.995	-0.106	1.998
2391	-0.047	0.997	-0.094	1.992
2392	-0.044	0.998	-0.086	1.996
2393	-0.045	0.998	-0.073	1.994
2394	-0.033	0.997	-0.063	1.996
2395	-0.028	0.997	-0.052	1.996
2396	-0.023	0.997	-0.042	1.996
2397	-0.019	0.998	-0.03	1.995
2398	-0.012	0.998	-0.02	1.995
2399	-0.01	0.997	-0.012	1.982
2400	0.001	0.997	0.002	1.996
2401				

加總=3.693

Please select the correct diagram on the left-hand side. And check the left-top type on the right-hand side. Then go Next .



折線圖。可顯示一數列在各類別或時間上的趨勢。



資料範圍(D): =curve1!$A$1:$D$240

數列資料取自: ○ 列(R) ● 欄(L)

圖表標題(T):

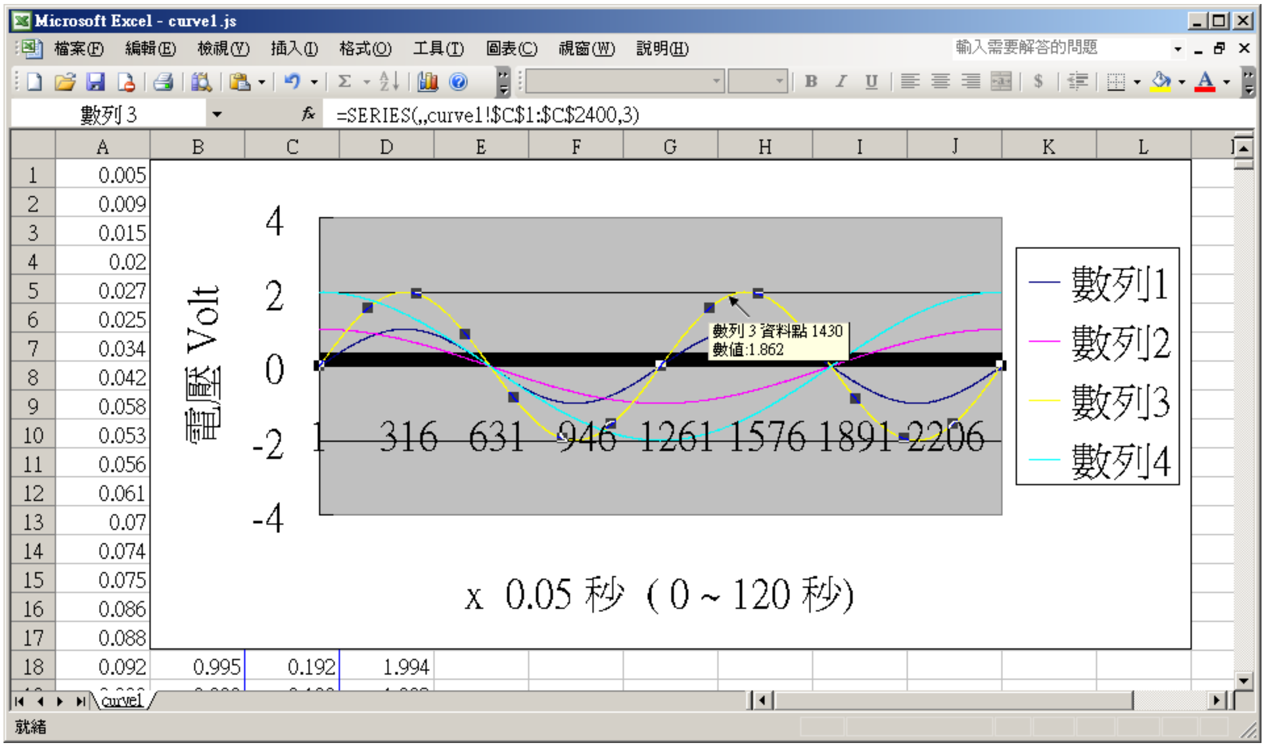
類別 X 軸(C): x 0.05 秒 (0～120 秒)

數值 Y 軸(V): 電壓 Volt

次要類別 X 軸(X):

次要數值 Y 軸(Y):

By the procedure, you will get the trend curve as the below window. You can modify its size, or check at any trend line. If you move your mouse to point at some position at the trend line, the related data is shown.

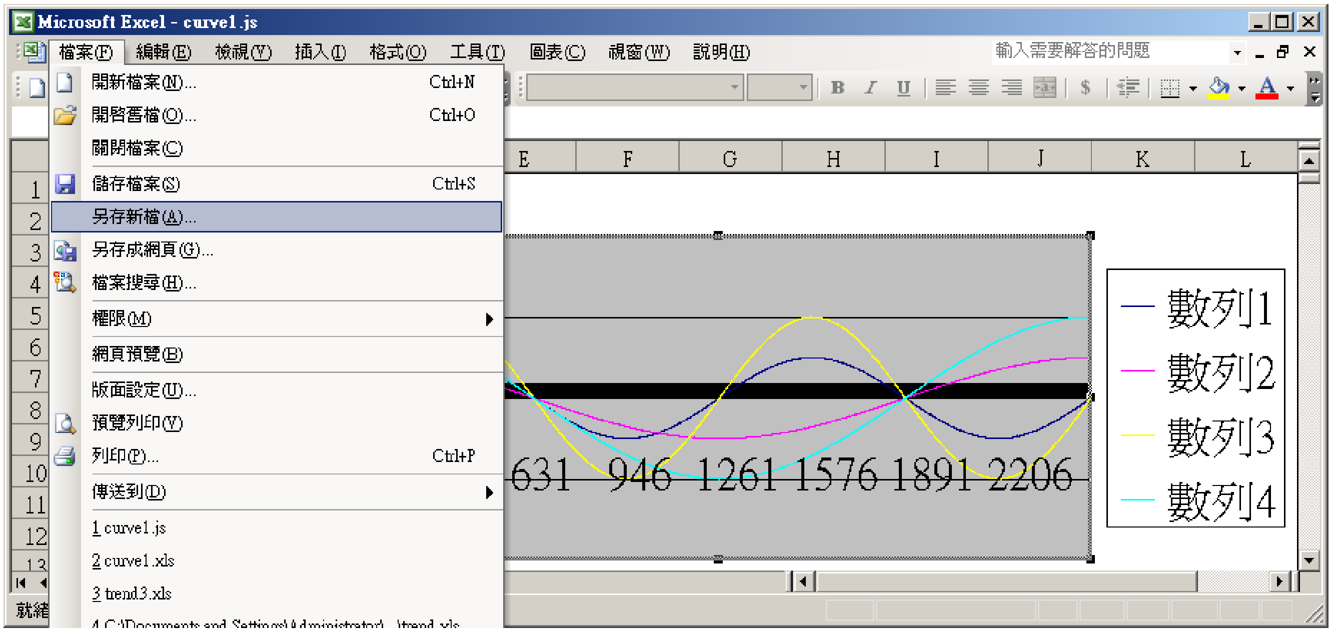


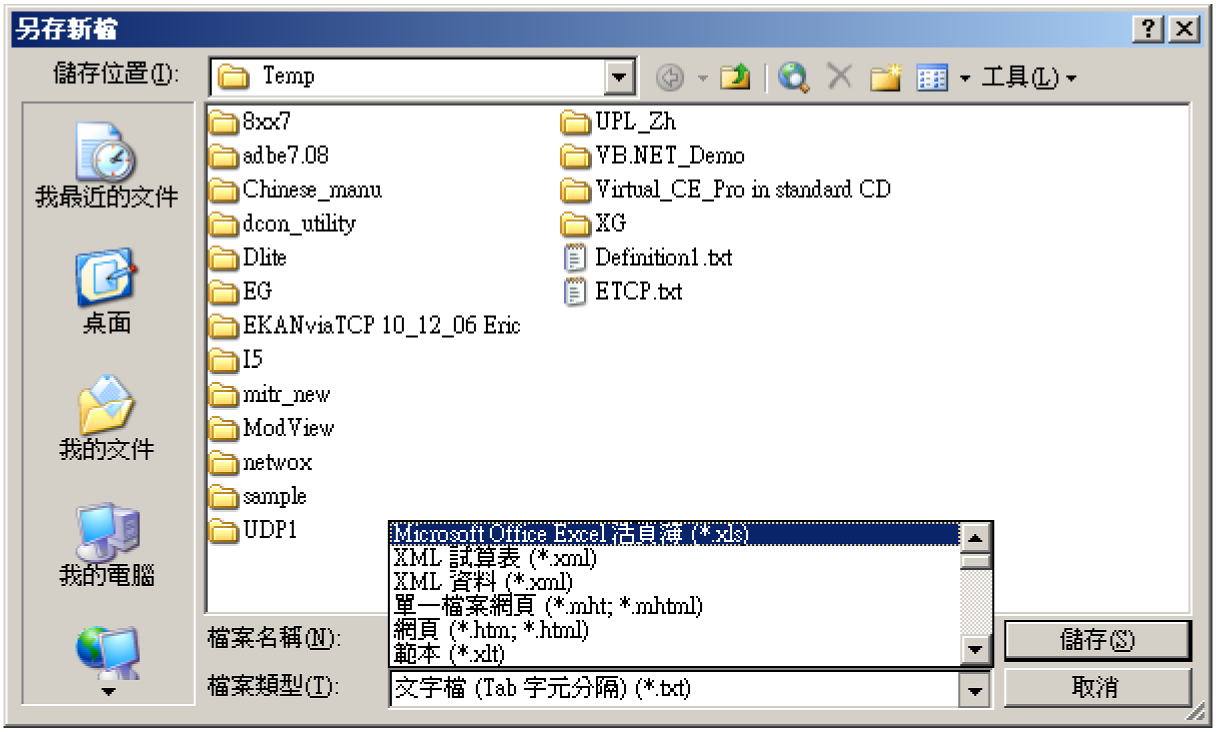
數列 3

=SERIES(,,curve1!$C$1:$C$2400,3)

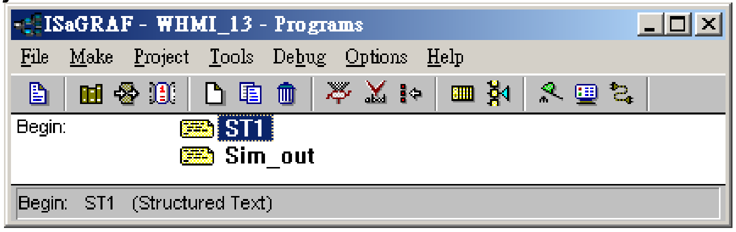
	A	B	C	D
1	0.005			
2	0.009			
3	0.015			
4	0.02			
5	0.027			
6	0.025			
7	0.034			
8	0.042			
9	0.058			
10	0.053			
11	0.056			
12	0.061			
13	0.07			
14	0.074			
15	0.075			
16	0.086			
17	0.088			
18	0.092	0.995	0.192	1.994

Please save this trend curve diagram as a “Microsoft Office Excel (*.xls)” format. Then at any later time, you can open it to display the trend curve directly.





ISaGRAF project architecture:


ISaGRAF - WHMI_13 - Programs
File Make Project Tools Debug Options Help

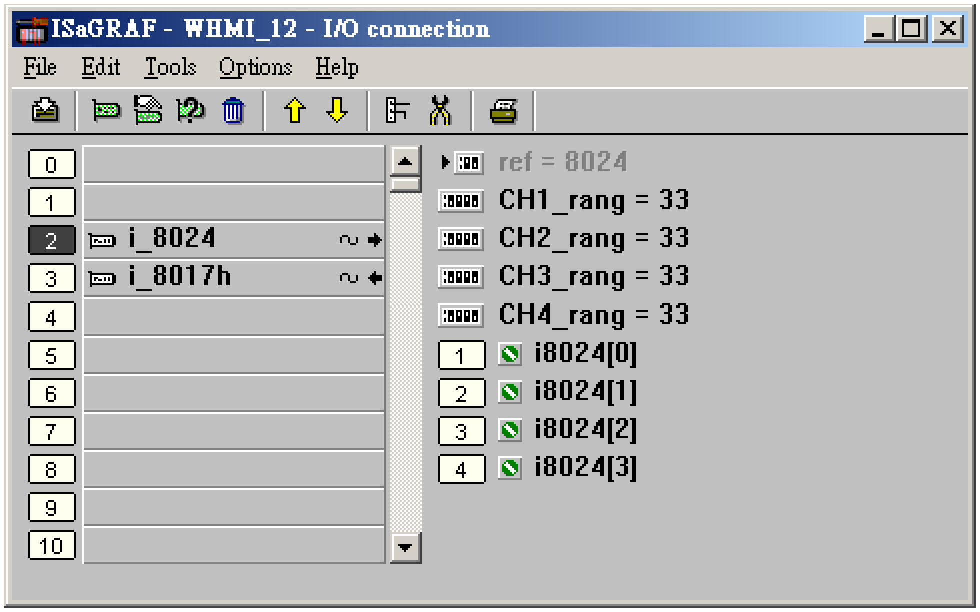
Begin: ST1
Sim_out

Begin: ST1 (Structured Text)

Variables :

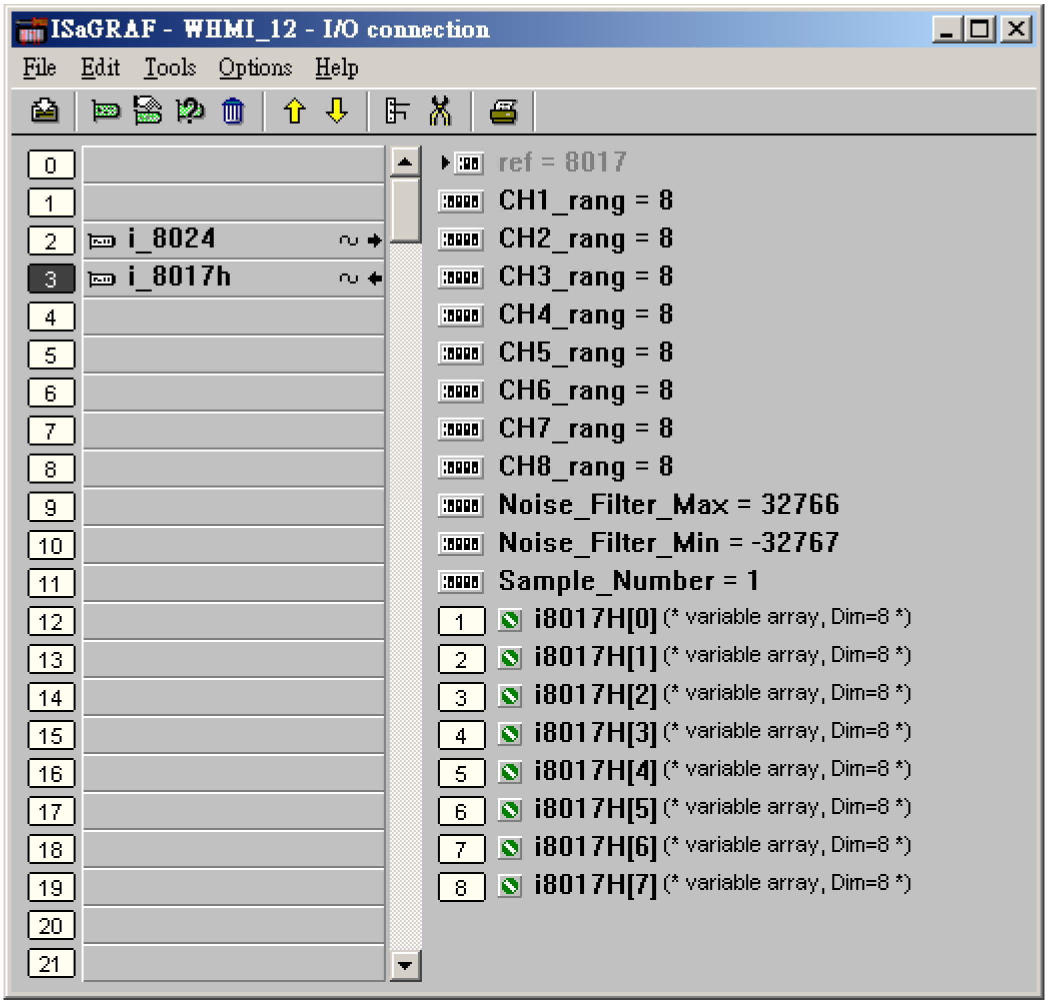
Name	Type	Attribute	Description
Go1	Boolean	**Internl**	Set as True to start, **addr defined as 21** (Hex. is 15)
Stop1	Boolean	**Internal**	Set as True to stop, **addr defined as 22** (Hex. is 16)
TMP	Boolean	**Internal**	Internal use
INIT	Boolean	**Internal**	Init as True
Save_file1	Boolean	**Internal**	The IsaGRAF program will set this value to True to store records to a RAM Disk File
MUM_CH	Integer	**Constant**	How many chanels in i-8017H to record ? We use 4 channels in this demo (Ch.1 to 4)
File1	Integer	**Internal**	File ID
STEP1	Integer	**Internal**	Recording state. 0:No action , 1:recording , 2:finished
Period1	Integer	**Internal**	How long to record ? unit is minute, **addr as 3**
Interval1	Integer	**Internal**	How long to save a record ? unit is ms, **addr as 1**
Total_record1	Integer	**Internal**	How many records in this recording action ? This value is calculated by the IsaGRAF program automatically. **addr declared as 5**
Record_cnt1	Integer	**Internal**	Current finished record count. **addr declared as 7**
ii & ii2	Integer	**Internal**	To use in “for” loops
i8017H[0..7]	Integer	**Input**	Variable array, Dim as 8. link to i-8017H ‘s Ch1 to Ch. 8
Volt1[0..7]	REAL	**Internal**	Variable array, Dim declared as 8. The voltage value converted from “i8017H[0..7]”
i8024[0..3]	Integer	**Output**	Variable array, Dim declared as 4. link to i-8024 ‘s Ch1 to Ch. 4
Save_cnt1	Integer	**Internal**	Current saving record amount in the RAM disk File, **addr declared as 9**
TMP_v	Integer	**Internal**	Internal use
T1	Timer	**Internal**	For counting time
T1_next	Timer	**Internal**	The time to get and save next record
T1_Interval	Timer	**Internal**	The interval time between two record
File_name1	Message	**Internal**	File name, Len is 64, init as \Web_Data1\curve1.js Web HMI support only RAM Disk File in \Web_Data1\ , If the file is in CompactFlash File, Web HMI support only in \CompactFlash\Temp\HTTP\Data\ (Please refer to Chapter 11.2 - Whmi_08 demo)
Msg1	Message	**Internal**	Operation state message, Len is 255, init as “No Action now”, **addr as 41** (Hex. is 29)
Str1	Message	**Intenal**	Len is 255, internal use

IO connection:


ISaGRAF - WHMI_12 - I/O connection
File Edit Tools Options Help

0
1
2 i_8024
3 i_8017h
4
5
6
7
8
9
10

ref = 8024
CH1_rang = 33
CH2_rang = 33
CH3_rang = 33
CH4_rang = 33
1 i8024[0]
2 i8024[1]
3 i8024[2]
4 i8024[3]


ISaGRAF - WHMI_12 - I/O connection
File Edit Tools Options Help

0
1
2 i_8024
3 i_8017h
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

ref = 8017
CH1_rang = 8
CH2_rang = 8
CH3_rang = 8
CH4_rang = 8
CH5_rang = 8
CH6_rang = 8
CH7_rang = 8
CH8_rang = 8
Noise_Filter_Max = 32766
Noise_Filter_Min = -32767
Sample_Number = 1
1 i8017H[0] (* variable array, Dim=8 *)
2 i8017H[1] (* variable array, Dim=8 *)
3 i8017H[2] (* variable array, Dim=8 *)
4 i8017H[3] (* variable array, Dim=8 *)
5 i8017H[4] (* variable array, Dim=8 *)
6 i8017H[5] (* variable array, Dim=8 *)
7 i8017H[6] (* variable array, Dim=8 *)
8 i8017H[7] (* variable array, Dim=8 *)

ST program – Sim_out

```
------------------------------------------------------------------------------------------------------------------
(* Output i-8024 ‘s Ch1  to Ch4 as different voltage curve *)

(*   2 * Pi * T1 / 60000  =  T1 * 1.047197E-4    *)
(*   2 * Pi * T1 / 120000 = T1 *  5.235985E-5 *)

i8024[0]  :=  ANA(  sin( REAL(T1) *  1.047197E-4 ) * 3276.8  )  ;
i8024[1]  :=  ANA(  cos( REAL(T1) *  5.235985E-5  ) * 3276.8  ) ;
i8024[2]  :=  ANA(  sin( REAL(T1) *  1.047197E-4 ) * 6553.6  ) ;
i8024[3]  :=  ANA(  cos( REAL(T1) *  5.235985E-5  ) * 6553.6  ) ;
------------------------------------------------------------------------------------------------------------------
```

ST program – ST1

```
------------------------------------------------------------------------------------------------------------------

(* W-8xx7 can have max. speed of 100Hz to record data ( minimum sample interval is 10 ms) *)
(* This example assume max. 8-Ch. , so 1 second will record 100 x 8 REAL value *)
(*   1 minute will record  100 x 8 x 60 = 48,000 REAL value *)
(* If period is set as 10 minute, we need 48,000 x 10 = 480,000 REAL value memory = 480,000
x 4 = 1,920,000 bytes *)

if  INIT  then
  INIT := False ;

  (* Allocate 500,000 integer (or 32-bit REAL) space to store records up to 10 minutes. total
500,000 x 4 = 2,000,000 bytes  , W-8xx7 support only No.1 Arcreate( ) up to 3,000,000 integer
space, that is 12,000,000 bytes . The first parameter in ARcreate( ) should be 1, it doesn't
support 1st parameter as 0, 2, 3, ... , 15  *)
  (* Arcreate( ) can be called only once in the ISaGRAF program *)
  TMP_v := ARcreate(1, 500000) ;
  if  TMP_v <> 1  then
    Msg1 := 'Parameter error or can not allocate memory by ARcreate( ) function!' ;
  end_if  ;

  TMP := PLC_mode(-1) ;     (* Set W-8xx7 ISaGRAF driver running at fatest mode *)
end_if ;

(* If stop command is gived *)
if  Stop1  then
  Stop1 := False ;
  STEP1 := 0 ;  (*  0: no action *)
  TStop(T1)  ;  (* stop T1 *)
  T1 := T#0s ;
  Msg1 := 'User stop recording !' ;
```

```
 save_cnt1 := 0 ;
end_if  ;

(* If start command is gived *)
if  Go1  then

  Go1 := False ;

  (* STEP1 :  0: no action , 1: recording , 2: recond finished *)
  if  STEP1=1  then

    (* It is still recording now *)
    Msg1 := 'It is still recording now ... Please wait' ;

  else

    (* Check interval valid or not *)
    (* we assume 10 to 10000 ms is valid in this example *)
    (* If your average PLC scan time is larger, for example, near 10 ms,
       Please use Interval larger than 10 ms. Or the record time won't be correct *)
    if  (Interval1 < 10)  or  (Interval1 > 10000)  then
     Msg1 := 'Wrong Interval value, it should be in 10 to 10000 milli-second !' ;

    (* Check period valid or not *)
    (* we assume 1 to 10 minute is valid in this example *)
    elsif ( Period1 < 1)  or  (Period1 > 10)  then
     Msg1 := 'Wrong Period value, it should be in 1 to 10 minute !' ;

    else

     (* parameter is correct, start recording *)

     total_record1 := (Period1 * 60000) / Interval1 ;  (* calculate total record number *)
     record_cnt1 := 0 ;  (* reset current record count as 0 *)
     STEP1 := 1 ;  (* set step as 1:recording *)
     Msg1 := 'Recording now ... Please wait'  ;

     (* start ticking T1 from 0 second *)
     T1 := T#0s ;
     T1_Interval := TMR(Interval1) ;
     T1_next := T1 + T1_Interval ;
     TStart(T1) ;   (* ticking now *)
     save_cnt1 := 0 ;
    end_if ;
```

```
   end_if ;
end_if ;

(* in reconrding state *)
if  STEP1 = 1  then

  (* store one record *)
  if  T1 >= T1_next  then

    (* Re-calculate next T1 *)
    T1_next := T1_next + T1_Interval ;

    (* T1 will be overflow after T#23h59m59s999ms, so reset it at T#20h *)
    if   T1 >= T#20h  then
      T1 := T#0s ;
      T1_next := T1 + T1_Interval ;
    end_if ;

    (* record data *)
    for  ii  :=  0  to  NUM_CH-1  do
       Volt1[ii] := Real(i8017H[ii]) * 0.000305176 ;    (* convert to voltage *)

(* using Real_int( ) to map REAL value to become integer value & then store it by ARwrite( ) *)
       TMP_v := ARwrite( 1 ,  NUM_CH * record_cnt1 + ii , Real_int(Volt1[ii]) ) ;

       (* check if ARwrite( ) correct *)
       if TMP_v <> 1  then
          Msg1 := 'Can not operate ARwrite( ) !' ;
          STEP1 := 0 ;    (*  0: no action *)
          TStop(T1)  ;    (* stop T1 *)
          T1 := T#0s ;
       end_if ;

    end_for ;

    (* Check if record number reach the end *)
    record_cnt1 := record_cnt1+1 ;      (* current record count plus 1 *)
    if  (record_cnt1 >= total_record1)   then

 (* record is finished, prepare to save records to a RAM disk file in serval separate PLC scans *)
      STEP1 := 0 ;   (* set step as 0 at the beginning of saving *)
      Tstop(T1) ;
      T1 := T#0s ;
      (* Create a new file *)
      File1 := F_creat(File_name1) ;
      if   File1 = 0  then
         (* Can not create file *)
         Msg1 := 'Create File ' + 'File_nam1 Error !!!' ;
      else

        (* Because saving lots of data to file take lots of PLC scan time , we are not going to
           save all data in a single PLC scan. We will save it in serval separate PLC scans *)

        Msg1 := ' Please wait ...   Saving data to file : ' + File_name1 + ' ...' ;
        save_file1 := True ;  (* set as True to start saving RAM disk file *)
        save_cnt1 := 0 ;   (* from 0 to total_record1-1 *)
      end_if ;

    end_if ;
  end_if ;
end_if ;

(* Because saving lots of data to file take lots of PLC scan time , we are not going to
      save all data in a single PLC scan. We will save it in serval separate PLC scans *)

(* save records to a RAM disk file in serval separate PLC scans *)
if  save_file1  then
   for  ii2 := 0  to 50  do      (* we limit one PLC scan can save max. 50 records *)
      if  save_cnt1 < total_record1  then
         str1 := '' ;     (* init str1 as empty string *)
         for  ii  :=  0  to  NUM_CH - 1  do
            (* delimiter is <TAB> character *)
            str1 := str1 + Rea_Str2( Int_real(ARread(1, NUM_CH * save_cnt1 + ii)) , 3  ) + '$09' ;
         end_for ;
         str1 := str1 + '$0D$0A'  ;  (* add <CR> <LF> at the end of each row *)
         TMP := F_writ_s(File1 , str1) ;
         save_cnt1 := save_cnt1 + 1 ;
      else
         (* saving is finished *)
         save_file1 := False ;
         TMP := F_close(File1) ;      (* Close file *)
         STEP1 := 2 ;                 (* 2: recond finished *)
         Msg1 := 'Record is finished ! You may download the record file to your PC now !' ;
      end_if ;
   end_for ;
end_if ;
  -----------------------------------------------------------------------------------------------------------------
```