Soft-GRAF : Create A Colorful HMI in The

XP-8xx7-CE6 and WP-8xx7 and VP-2xW7 PAC.

by chun@icpdas.com

Soft-GRAF is a HMI software developed by ICP DAS which allows user to create his colorful HMI application running with the control logic in the same XP-8xx7-CE6 , WP-8xx7 and VP-2xW7 PAC. With the supporting of Soft-GRAF, user can use the same ISaGRAF software to design both HMI and control logic.

Please refer to the following web site for more information about the XP-8xx7-CE6 , WP-8xx7 and VP-2xW7 PAC .
(Only the XP-8xx7-CE6 supports Motion cards : I-8094F / I-8092F / I-8094).

http://www.icpdas.com/products/PAC/i-8000/data%20sheet/data%20sheet.htm

1.1 : Software Installation

This FAQ131 paper is version 1.3. User can download it from the following web site or from the following CD-ROM. ("faq131.pdf" and "faq131_demo.zip")

   www.icpdas.com > FAQ > Software > ISaGRAf > 131
   http://www.icpdas.com/faq/isagraf.htm > 131
   WP-8xx7 CD:\napdos\isagraf\wp-8xx7\english_manu\
   VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\english-manu\
   XP-8xx7-CE6 CD:\napdos\isagraf\xp-8xx7-ce6\english-manu\

The following ISaGRAF driver version supports Soft-GRAF.
   WP-8xx7 : Ver. 1.29 or later   ,   VP-25W7/23W7: Ver. 1.20 or later
   XP-8xx7-CE6 : Ver. 1.09 or later

If the ISaGRAF driver version in your PAC is newer than the above listed version, no need to update the ISaGRAF driver. However if it is older, please visit the following web site to download the newer ISaGRAF driver. And then refer to a PDF paper inside the downloaded ZIP file to update the ISaGRAF driver to your PAC. Please must end the ISaGRAF driver first and then copy all files and sub-directory ("sofgrafy") in the related version-number directory (for example, the "1.09" directory inside the downloaded ZIP file) to the "\system_disk\isagraf\" path in your PAC.
http://www.icpdas.com/products/PAC/i-8000/isagraf-link.htm.

Then restore the c-function "sofgrafy.uia" to the PC / ISaGRAF. (the "sofgrafy.uia" and "soft-grf.xia" are in the "faq131_demo.zip") .
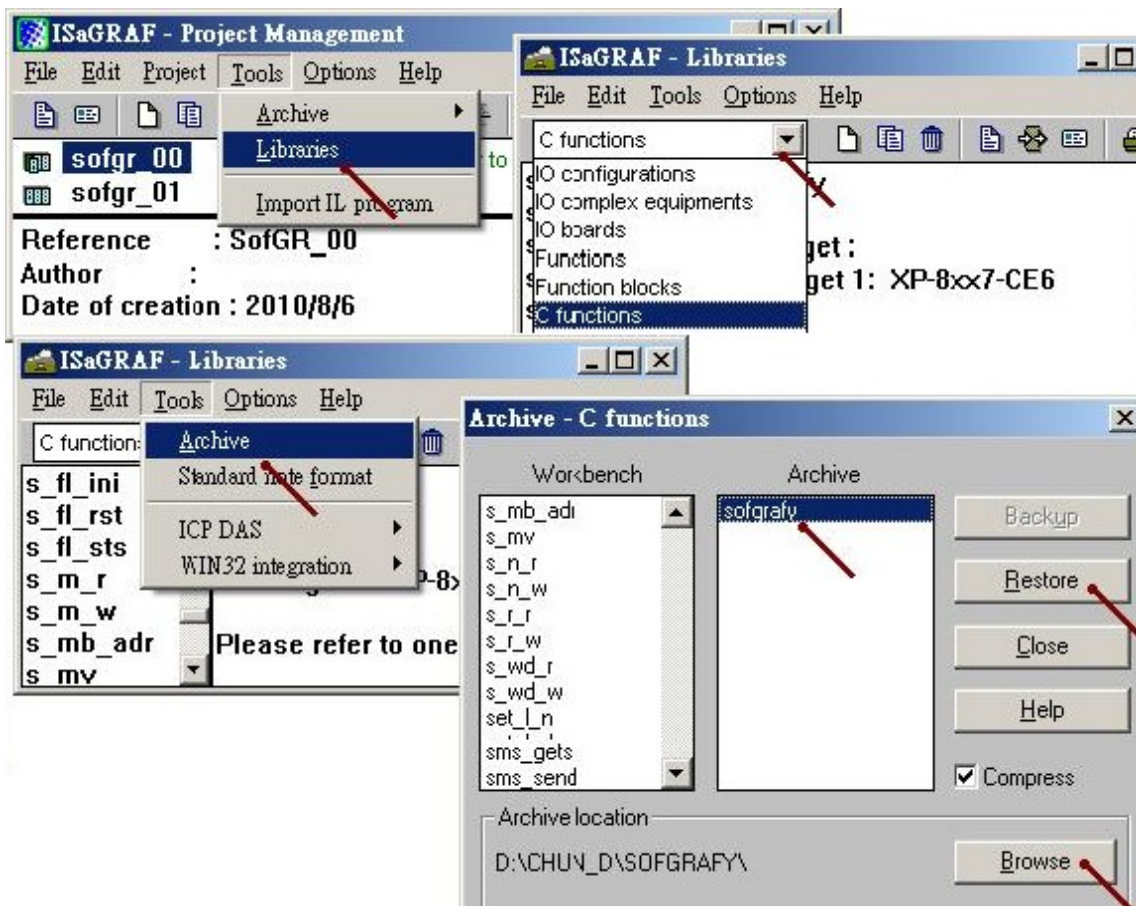
And then restore IO-Complex-equipment "soft-grf.xia" to the PC / ISaGRAF.
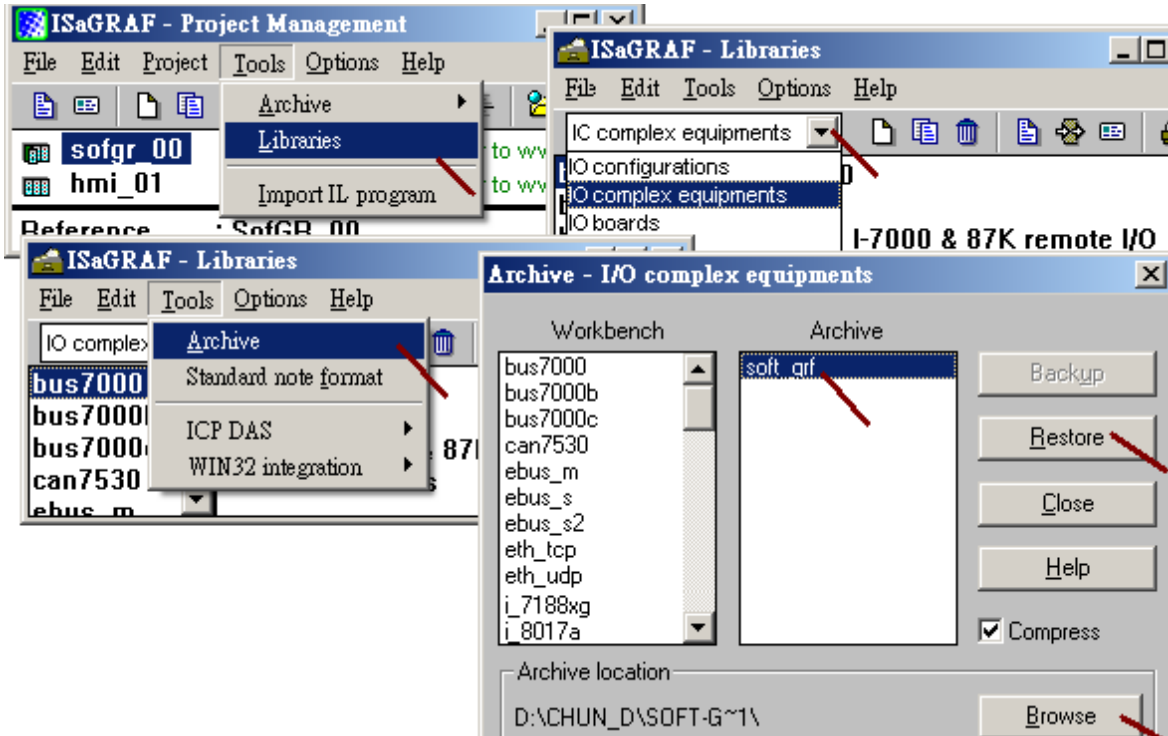
The "FAQ131_demo.zip" includes one sample project - "sofgr_00.pia" and some demo projects - "sofgr_01.pia" to "sofgr_06.pia". Please restore them to the PC/ISaGRAF. The "sofgr_02.pia" is the example project which contains the usage of 18 HMI objects.
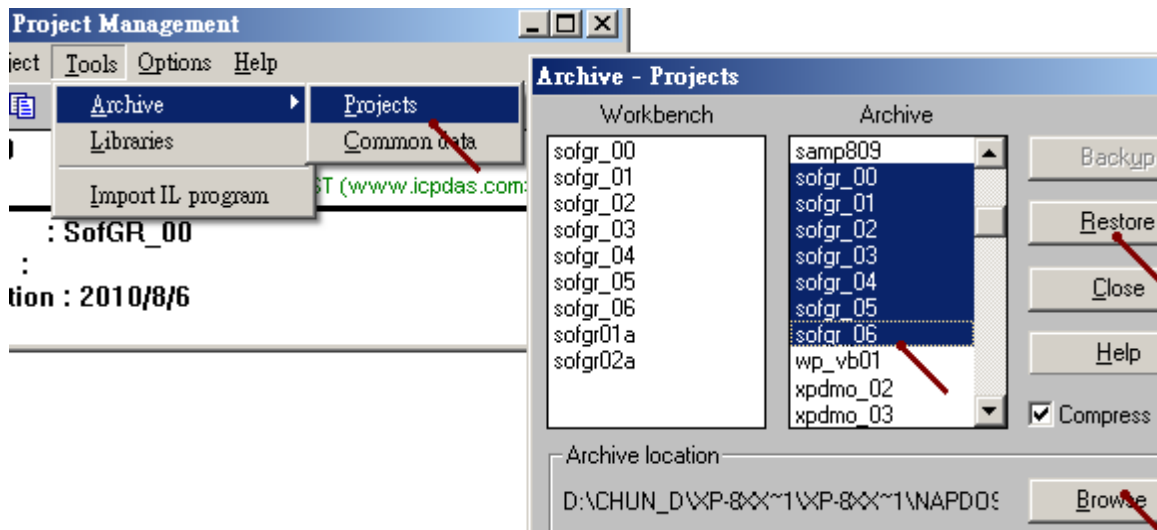
ISaGRAF driver which supports the Soft-GRAF driver (Ver. 1.03) has supported the following HMI objects.

g_Page	Create a HMI Page
g_Login	Create a Login button
g_Logout	Create a Logout button
g_ToPage	Create a switch-page button
g_Label	Display a Label
g_B_Led	Display a LED to show a Boolean value
g_B_Val	Display a Text to show a Boolean value
g_WD_Val	Display a 16-bit integer (occupy 1 Network addr. number)
g_N_Val	Display a 32-bit integer (occupy 2 Network addr. numbers)
g_F_Val	Display a 32-bit Float value (occupy 2 Network addr. numbers)
g_B_Pic	Display a picture (JPG, PNG, GIF, BMP) to show a Boolean value
g_N_Pic	Display a picture (JPG, PNG, GIF, BMP) to show an Integer value
g_N_Text	Display a text to show an Integer value
g_B_inp	Create a button to input a Boolean value
g_WD_inp	Create a button to input a 16-bit integer value(occupy 1 Network addr.)
g_N_inp	Create a button to input a 32-bit integer value (occupy 2 Network addr. numbers)
g_F_inp	Create a button to input a 32-bit Float value (occupy 2 Network addr. numbers)
g_Trace2	Display a 2-axes (x , y) or 1-axis (x : Horizontal) or 1-axis (y : Vertical) moving trace map
g_Rect	Draw a Rectagle

1.2 : Program the Soft-GRAF HMI by the ISaGRAF software

Please refer to the section 1.4 for detailed function description of each HMI object. (Please refer to the section 1.5 for the description of some demo programs)

Before programming the Soft-GRAF HMI project, first copy the sample project -"sofgr_00.pia" to one another new project name. Then going further to program this new created project. (The "sofgr_00.pia" includes the function definition of all Soft-GRAF HMI objects. So user has to copy it to a new project before program the new project). For example, the following "HMI_01" is the new copied project.

If just wanner copy the function definition of a single HMI object to an existing project, please refer to the description of the next page.
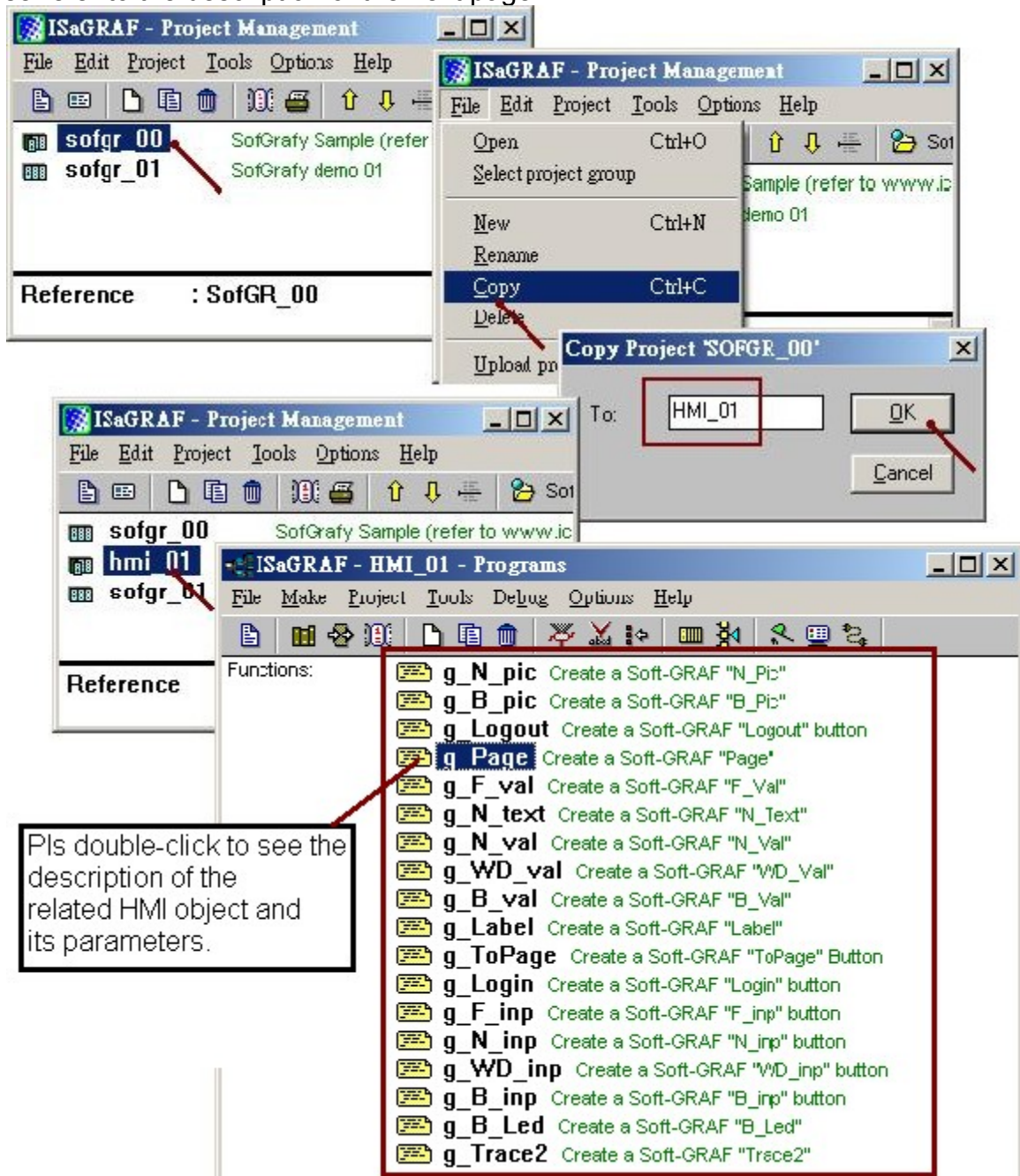
To copy the function definition of a single Soft-GRAF HMI object to an existing project, please select that function first, then copy it to the existing project as the following.

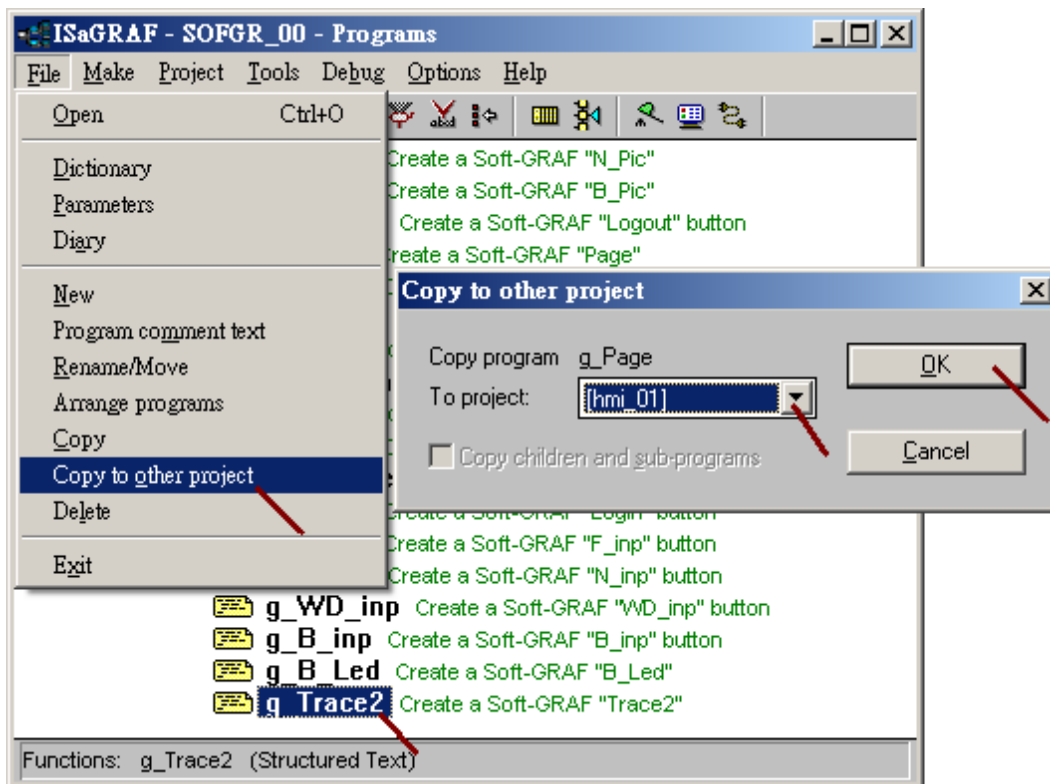## 1.2.1 : Basic Soft-GRAF concept

Please refer to the section 1.4 for detailed function description of each HMI object.
(Please refer to the section 1.5 for the description of some demo programs)

HMI Page :
One Soft-GRAF project can contain max. 200 HMI pages (No. 1 to 200). The PAC will
display the Page No. 1 if it has enabled the Soft-GRAF in the program when powering it up
(refer to the section 1.2.2). Every Soft-GRAF project must create the Page 1. Every Page
is displayed as full screen and only one Page is shown on the monitor at any time.
Each Page can define a language encoding. The language encoding is defined by the first
text of the "Title" parameter in the "g_Page" function. For example, the 'big5' is for
Traditional Chinese encoding, while the 'gb2312' is for the Simplified Chinese. If setting the
language encoding as '' (empty text) or 'UTF-8' means applying the English encoding.

X_Y coordinate :
The horizontal axis of the monitor is called "X axis", while vertical axis is called "Y axis".
The original position of (X , Y) is (0 , 0) which resides at the most top-left position on the
monitor. The value of X coordinate is increasing from left to right direction. The value of Y
coordinate is increasing from top to bottom direction. The unit of the (X , Y) coordinate is
"Pixel" . For example, the default resolution setting of the WP-8847 is 800 x 600, so its X
coordinate ranges from 0 to 799, while ranges from 0 to 599 for Y coordinate.
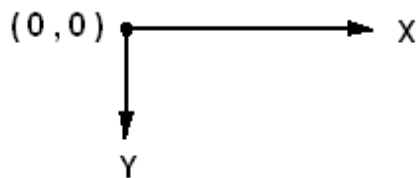
Layer of a HMI object :
One Soft-GRAF Page can contain max. 500 HMI objests and max. 30,000 HMI objects in
one Soft-GRAF project. The layer of a HMI object defines its display order on the Page. If
there is two or more HMI objects reside at the same position, only the object which has
higher layer is displayed (lower layer is hided). The layer of HMI object is defined by the
program order when it is created. For example, the below program has created the first
"g_Label" at X_Y = 20_0030 (starting position) and W_H = 80_0020 (width, height) . The
second "g_Label" is created later and resides at the same position as the first "g_Label".
So the first "g_Label" is displyed and the second "g_Label" is hided. The third "g_Label"
resides at a different position (X_Y = 20_0060) so it is displayed .
Note: Do not set X_Y as 20_30 because it means the X_Y = 0_2030 (x=0, y=2030) and
also Do not set W_H as 80_20 because it means the W_H = 0_8020 (w=0, h=8020)

```
(*  Soft_GRAF_init  should be declared as an internal boolean with an initial value - TRUE *)
if  Soft_GRAF_init  then
   Soft_GRAF_init := False ;
   TMP := g_Page( 0 , 1 , 0 , 0 , 12_0 , 'Black;;White' , 'UTF-8;;This is Page 1' , '' , '' ) ;
   TMP := g_Label( 0 , 1 , 20_0030 , 80_0020 , 10_0 , 'Blue;;' , 'Ch.01: ' , 'C' , '' ) ;
   TMP := g_Label( 0 , 1 , 20_0030 , 80_0020 , 10_0 , 'Green;;' , 'Second: ' , 'L' , '' ) ;
   TMP := g_Label( 0 , 1 , 20_0060 , 80_0020 , 10_0 , 'Red;;' , 'Ch.02: ' , 'R' , '' ) ;
end_if ;
```

Parameters of the function of HMI objects:

The first 5 parameters - NetW_ , P_ , X_Y_ , W_H_ and Font_ are "Integer" format for almost all HMI objects. The format of parameters after the sixth parameter are all "Message" . If the parameter is "Message" format and contains at least 2 texts inside, please use two senicolumn characters (;;) to separate these texts. For example, the Color parameter - 'White**;;**Black' . All HMI object functions have a "More_" parameter, please set them as " (empty text). This "More_" paramter is reserved for future usage.

NetWork :

Some HMI objects should set the "NetW_" parameter, like the "g_B_Led" , "g_N_Val", then please set it as a value ranging from 1 to 8191. However the "NetW_" parameter is useless for some objects, like the "g_Page" , "g_Label", then please set it as 0. The "NetW_" defines the relationship between the HMI object and the ISaGRAF variable. It means the network address of the relative ISaGRAF variable.

Page parameter:

Every HMI object function should set this "P_" parameter. It means the Page number where the HMI object resides. Value can be 1 to 200 .

X_Y (starting position) and W_H (width , height) :

Every HMI object function must set the "X_Y" and "W_H" parameters except the "g_Page" object. The value format of the "X_Y" is xxxx_yyyy , while wwww_hhhh for "W_H". For ex., setting X_Y = 25_0135 means its starting position (the top-left position) is (25 , 135), Setting W_H = 0020_0030 means the width of the object is 20 pixels and height is 30 pixels. Do not set X_Y = 25_135, it means 2_5135 (x=2, y=5135) and also Do not set W_H = 20_30, it means 0_2030 (w = 0, h = 2030, Error)

Font :

Many HMI objects have a "Font" parameter. It defines the text size and style. There are 3 digits – ss_t. The text size is ss, can be 6 to 99. The type t can be 0 (normal) or 1 (Bold) or 2 (italic) or 4 (under-line). For example, 12_1 means the text size is 12 and displayed as **Bold** text . While 8_2 means text size is 8, displayed as italic text.

Color :

Many HMI objects have a "Color" parameter. It usually defines the ForeColor and the BackColor. Few HMI object may have a different "Color" setting (Please refer to the section 1.4) . Please always set correct value for colors (Refer to the section 1.3).

The "Color" parameter is Message format, please use two senicolumn characters (;;) to separate these colors. If not setting the color value, it means applying the same color which defined by the Page (the color definition in the "g_Page" object). For ex., 'White;;Black' means ForeColor is White, BackColor is Black. While 'SpringGreen' only set the first color, so it defines ForeColor as SpringGreen, its BackColor is not set, so applying the same BackColor as the "g_Page" object. The ';;LightGray' doesn't set the ForeColor, so applying the same ForeColor as "g_Page", however it has set BackColor as LightGray

1.2.2 : Programming the Soft-GRAF HMI project

Please refer to the section 1.4 for detailed function description of each HMI object. (Please refer to the section 1.5 for the description of some demo programs)

If you are not familiar with the ISaGRAF software, recommend to refer to the Chapter 1.1 and 1.2 and Chapter 2.1 and 2.2 of the "ISaGRAF User's Manual" (The complete User's manual "user_manual_i_8xx7.pdf" can be found in your XP-8xx7-CE6 or WP-8xx7 or VP-2xW7 's CD-ROM.
   WP-8xx7 CD:\napdos\isagraf\wp-8xx7\english_manu\
   VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\english-manu\
   XP-8xx7-CE6 CD:\napdos\isagraf\xp-8xx7-ce6\english-manu\
Or can download it at the following web site
   http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm

The program listed below is the same as the "sofgr_01" project, you may refer to it directly.

To enable the Soft-GRAF HMI, please connect the "soft_grf" in the ISaGRAF IO connection window as below. When you copy the sample project - "sofgr_00" to a new project, the "soft_grf" is already connected in the IO connection window. If user doesn't want to enable the Soft-GRAF HMI, please disconnect it.
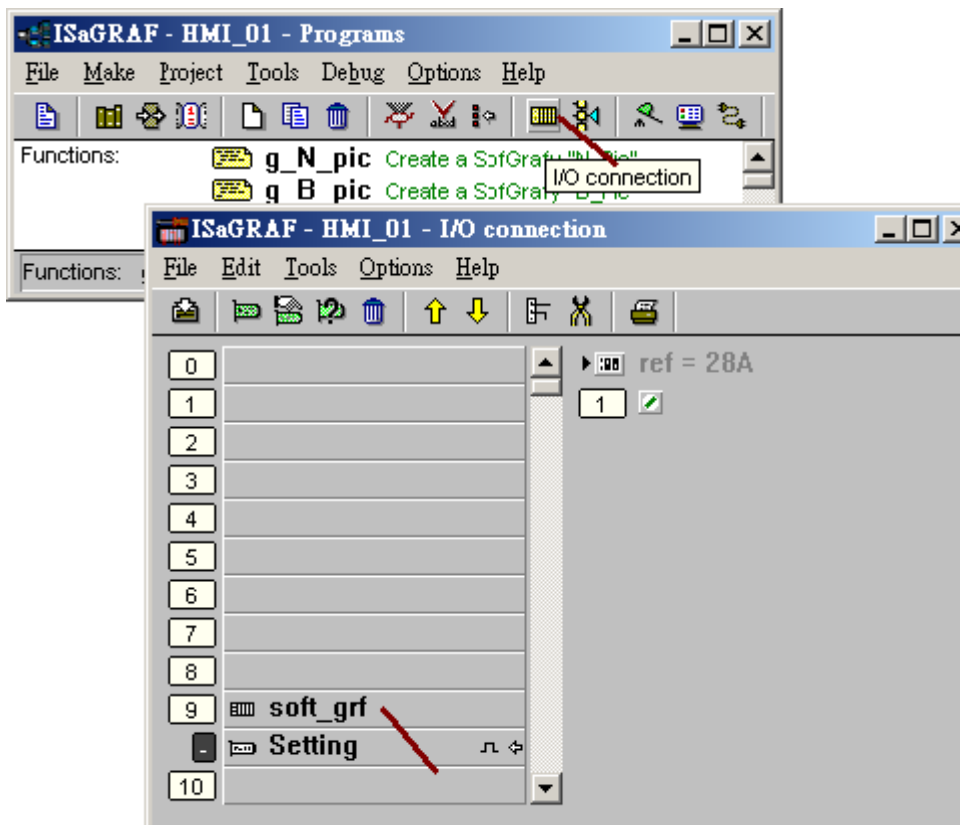
We need three internal Boolean variables, they are "Soft_GRAF_init" (should set initial value as True) , "TMP" and "LED_01" (set NetWork address as **11**) . If you are not familiar with the ISaGRAF software, recommend to refer to the Chapter 1.1 and 1.2 and Chapter 2.1 and 2.2 of the "ISaGRAF User's Manual" .
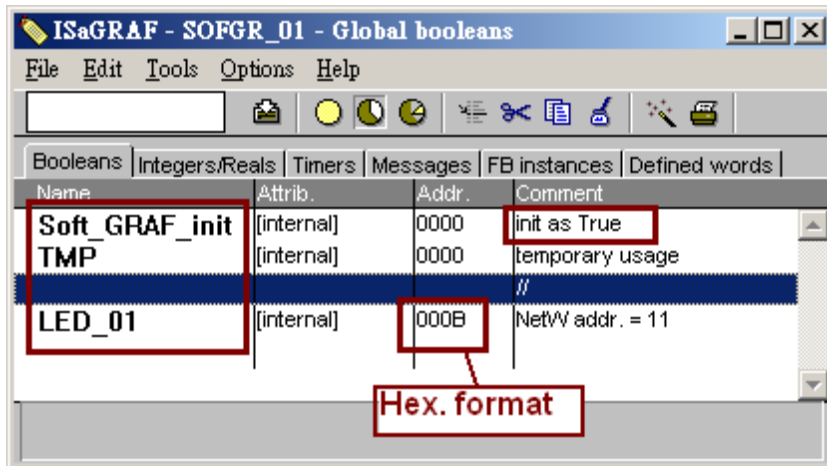
Then create a ST1 program .
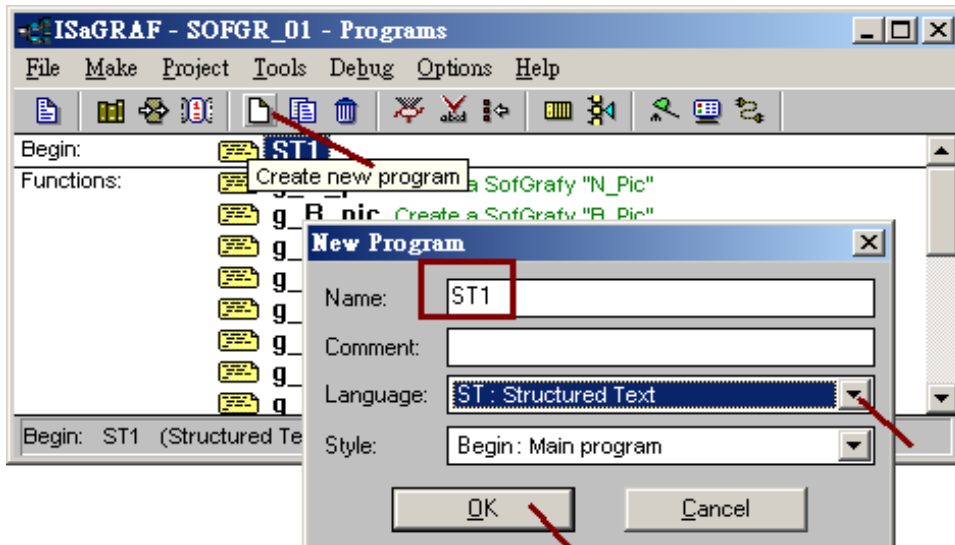
This ST1 program will only run in the first PLC scan to create some Soft-GRAF HMI objects.
(The "Soft_GRAF_init" should be set as an initial value - True)

```
if  Soft_GRAF_init  then

 Soft_GRAF_init := False ;
 TMP := g_Page( 0 , 1 , 0 , 0 , 10_0 , 'Black;;White' , 'UTF-8;;This is Page 1' , '' , '' ) ;
 TMP := g_Label( 0 , 1 , 20_0010 , 300_0060 , 10_1 , 'Blue;;' , 'Welcome to the Soft-GRAF Demo 01.
Please visit www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131' , 'C' , '' ) ;

 TMP := g_B_Led(11 ,1 , 20_0080 , 40_0040 , 10_1 , 'Black;;Red' , 'OFF;; ON' , '' ) ;
 TMP := g_B_Pic(11 ,1 , 100_0080 , 60_0060 , '\gif\Fan03-s-(040).gif;;\gif\Fan03-s-(041).gif' , '' , '' , '' ) ;
 TMP := g_B_inp(11 ,1 , 20_0140 , 80_0024 , 10_1 , 'ForestGreen;;' , 'ON / OFF' , '0' , '0' , '0' , '0' , '' ) ;
 TMP := g_B_inp(11 ,1 ,120_0140 ,160_0024 , 10_1 , 'DarkRed;;' , 'ON --> 5 sec --> OFF' , '3;;5' , '0' ,
'1' , '0' , '' ) ;

 TMP := g_ToPage( 0 , 1 , 20_0180 , 110_0024 , 10_1 , 'Blue;;' , 'Goto Page 2' , '2' , '0' , '0' , '' ) ;

 TMP := g_Page( 0 , 2 , 0 , 0 , 10_0 , 'Black;;White' , 'big5;;第 2 頁' , '' , '' ) ;
 TMP := g_ToPage( 0 , 2 , 20_0020 , 120_0024 , 11_0 , 'Red;;' , '到第 1 頁' , '1' , '0' , '1' , '' ) ;

end_if ;
```

Then set the compiler options and compile the project.
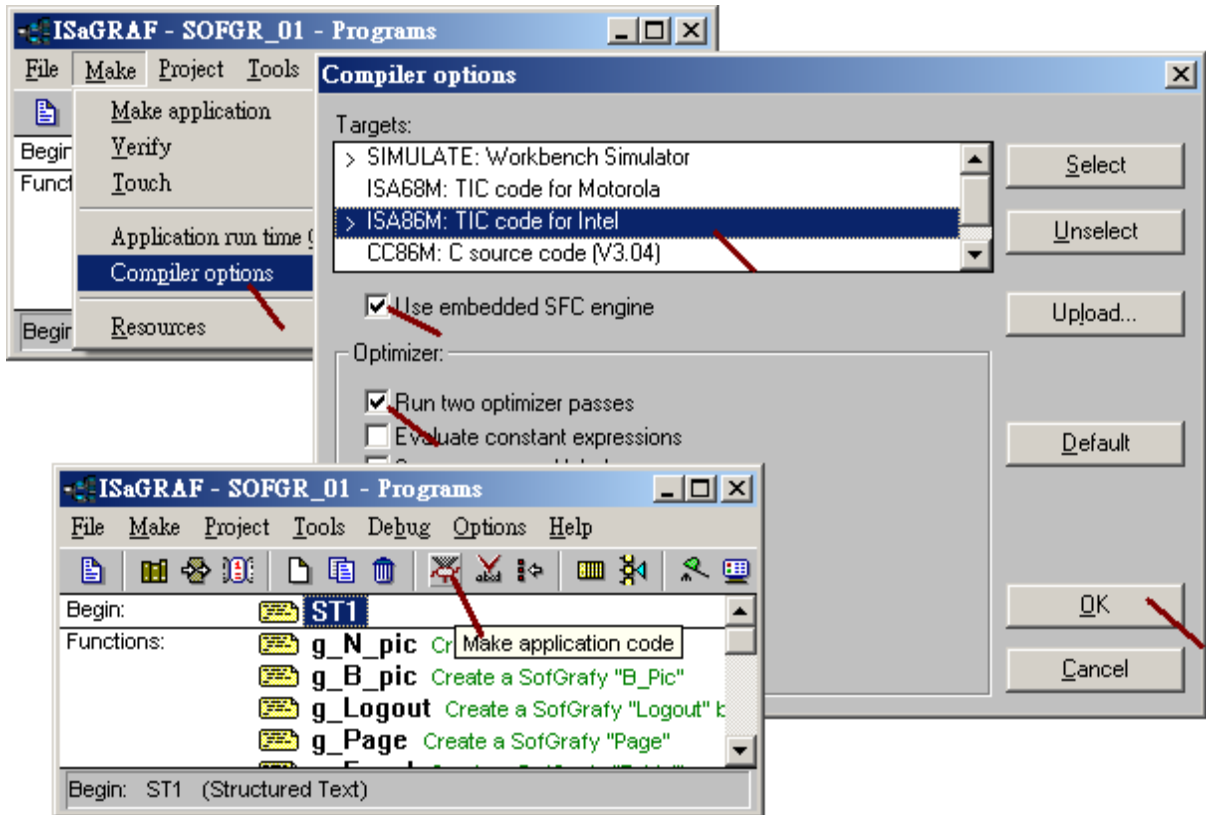
Set correct Link-Setup to link to the PAC 's IP address.

Then download the program to the PAC.

Then the Soft-GRAF HMI page 1 will show up on the PAC 's Monitor .
(When click the top-left corner on the Page 1 , the version information will show up)

Soft-GRAF driver version 1.01 , Sep.21,2010

This is Page 1

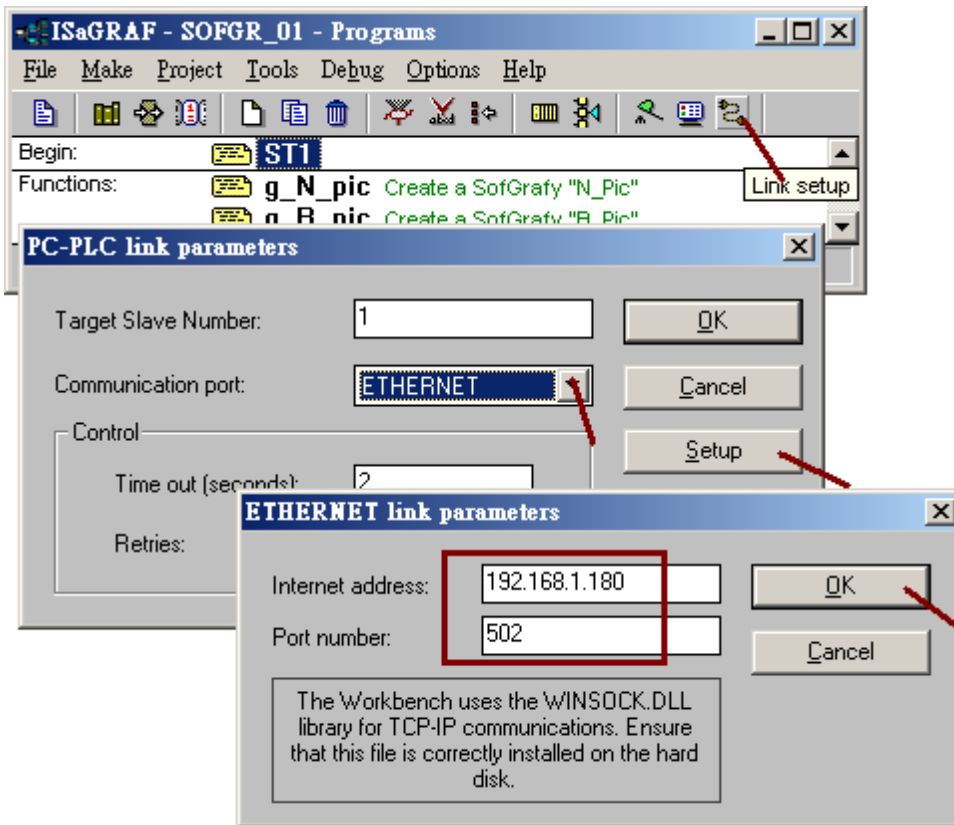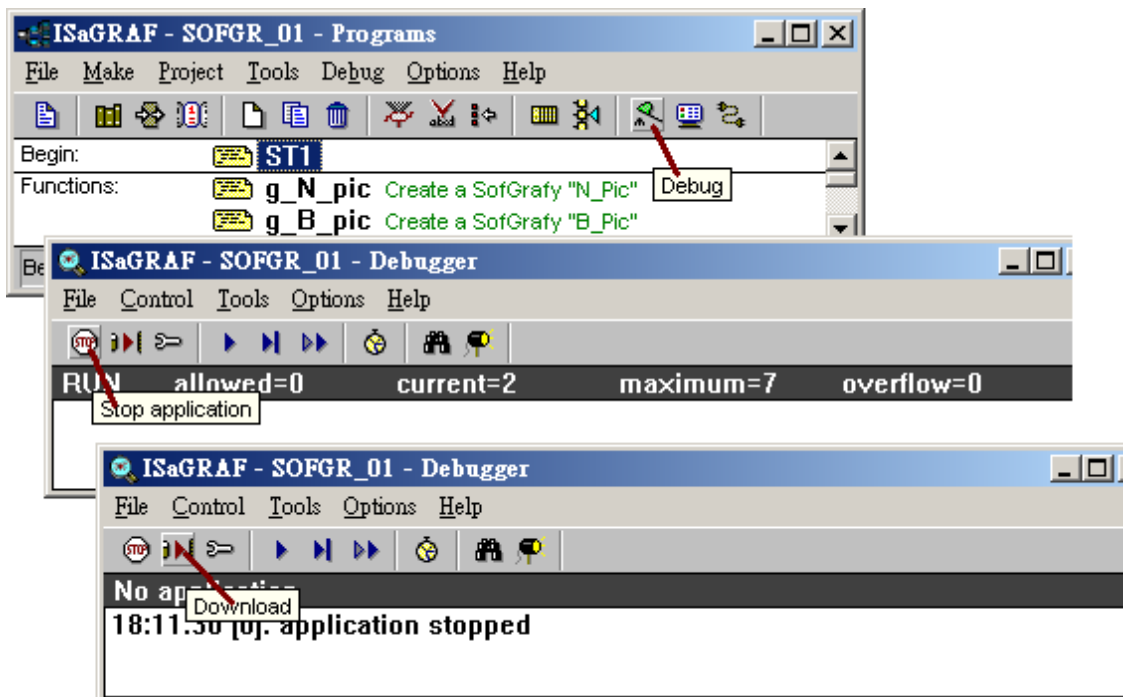Welcome to the Soft-GRAF Demo 01. Please visit www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131

ON

ON / OFF   ON --> 5 sec --> OFF

Goto Page 2
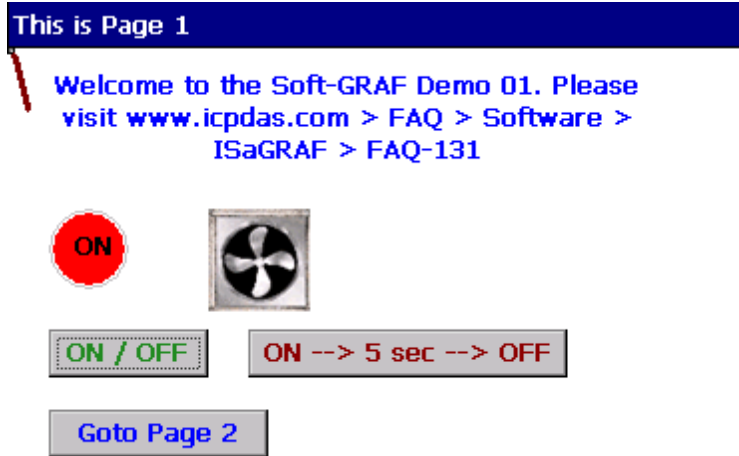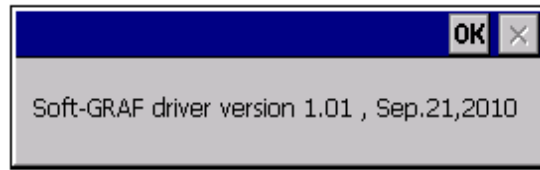
User may download the "Sofgr_02" project to PAC to see a demo of many HMI objects.

Soft-GRAF Demo 02. Please visit www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131   Time= 15 : 6 : 9

Working

ON   ON   Set OFF

Set ON

ON / OFF   ON --> 5 sec --> OFF

Goto Page 2

k10

5

Set WD_val

Please enter 499 and 500 to see the difference

0

Set N_val

Please enter 49999 and 50000 to see the difference

1.05 kg

Set F_Val

Please enter 999.99 and 1000 to see the difference

125000   125000

62500   62500

0   0

0   125000   250000

64800   83250   82800

Login

0   1250   2500   Clear

646.00

This "Sofgr_02" demo requires a "passwd.txt" file saved in the PAC 's \System_disk\ISaGRAF\sofgrafy\ directory to make the Login function work. Please refer to the description of "g_Login" listed in the section 1.4.

1.2.3 : To display the Soft-GRAF HMI with real FULL SCREEN

When complete all design and testing of the control logic and Soft-GRAF HMI, user may do the following setting to display the Soft-GRAF HMI with real full screen . This prevent anyone to mis-operate the PAC 's OS .
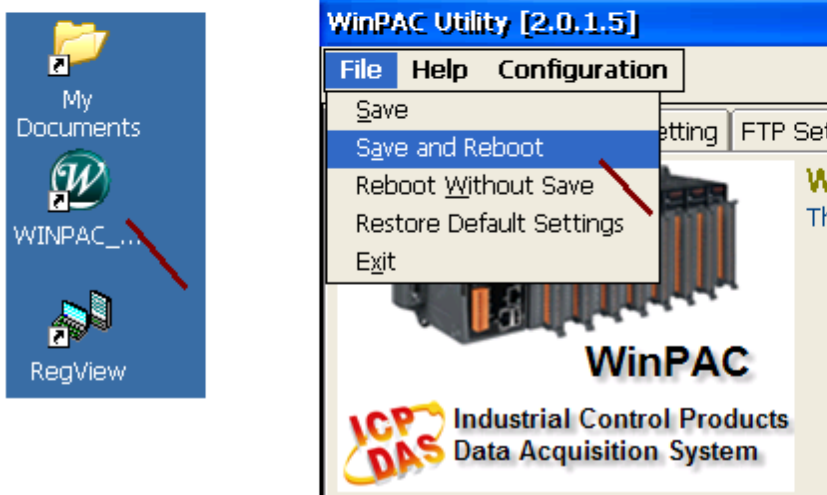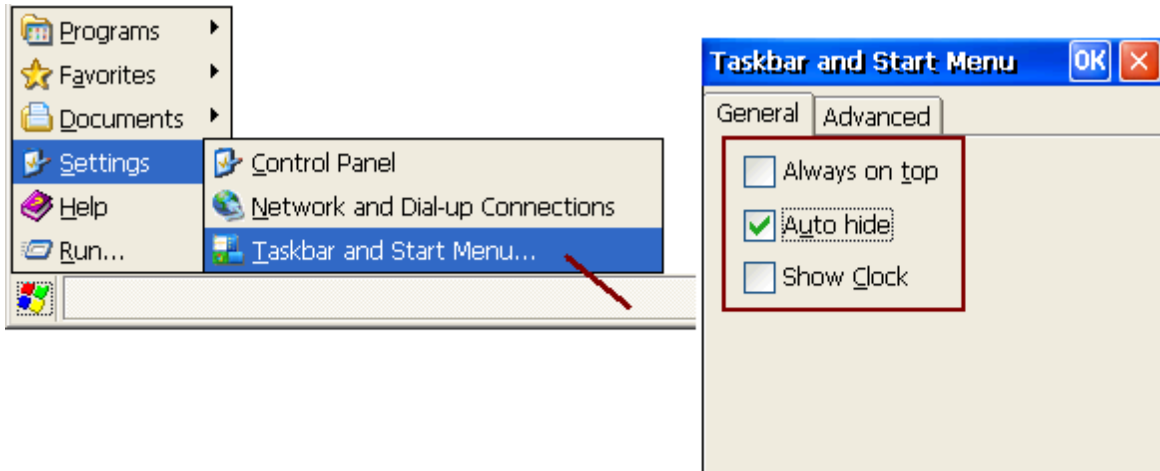
How to stop the real full screen ?

When the PAC is setting as "Toolbar Auto hide" , the Soft-GRAF HMI will occupy the full screen. Then it is not possibel to do any operation with the PAC 's OS. There is two possible ways to solve this problem.

1. (Recommend using this way) : PC running ISaGRAF to connect to the PAC and then click "Stop application" .
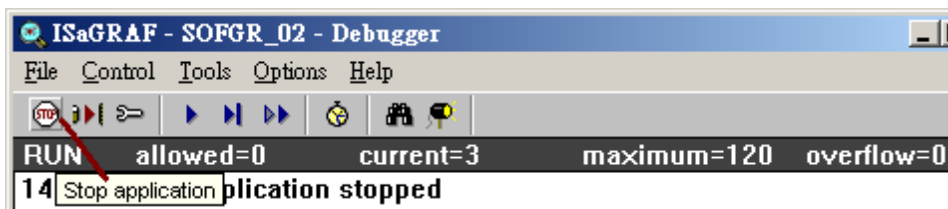
2. Power OFF the PAC and turn the PAC 's Rotary-switch to 1: Safe mode, Power it up with "Safe Mode" .

1.3 : Value of Colors

All Soft-GRAF HMI objects support only the following value for colors. The case should be the same, they are case-sensitive.

A			
☐ AliceBlue	☐ AntiqueWhite	☐ Aqua	☐ Aquamarine
☐ Azure			

B			
☐ Beige	☐ Bisque	☐ Black	☐ BlanchedAlmond
☐ Blue	☐ BlueViolet	☐ Brown	☐ BurlyWood

C			
☐ CadetBlue	☐ Chartreuse	☐ Chocolate	☐ Coral
☐ CornflowerBlue	☐ Cornsilk	☐ Crimson	☐ Cyan

D			
☐ DarkBlue	☐ DarkCyan	☐ DarkGoldenrod	☐ DarkGray
☐ DarkGreen	☐ DarkKhaki	☐ DarkMagenta	☐ DarkOliveGreen
☐ DarkOrange	☐ DarkOrchid	☐ DarkRed	☐ DarkSalmon
☐ DarkSeaGreen	☐ DarkSlateBlue	☐ DarkSlateGray	☐ DarkTurquoise
☐ DarkViolet	☐ DeepPink	☐ DeepSkyBlue	☐ DimGray
☐ DodgerBlue			

F			
☐ Firebrick	☐ FloralWhite	☐ ForestGreen	☐ Fuchsia

G			
☐ Gainsboro	☐ GhostWhite	☐ Gold	☐ Goldenrod
☐ Gray	☐ Green	☐ GreenYellow	

H			
☐ Honeydew	☐ HotPink		

I			
☐ IndianRed	☐ Indigo	☐ Ivory	

K			
☐ Khaki			

L			
☐ Lavender	☐ LavenderBlush	☐ LawnGreen	☐ LemonChiffon
☐ LightBlue	☐ LightCoral	☐ LightCyan	☐ LightGoldenrodYellow
☐ LightGray	☐ LightGreen	☐ LightPink	☐ LightSalmon
☐ LightSeaGreen	☐ LightSkyBlue	☐ LightSlateGray	☐ LightSteelBlue

☐ LightYellow	☐ Lime	☐ LimeGreen	☐ Linen
M			
☐ Magenta	☐ Maroon	☐ MediumAquamarine	☐ MediumBlue
☐ MediumOrchid	☐ MediumPurple	☐ MediumSeaGreen	☐ MediumSlateBlue
☐ MediumSpringGreen	☐ MediumTurquoise	☐ MediumVioletRed	☐ MidnightBlue
☐ MintCream	☐ MistyRose	☐ Moccasin	
N			
☐ NavajoWhite	☐ Navy		
O			
☐ OldLace	☐ Olive	☐ OliveDrab	☐ Orange
☐ OrangeRed	☐ Orchid		
P			
☐ PaleGoldenrod	☐ PaleGreen	☐ PaleTurquoise	☐ PaleVioletRed
☐ PapayaWhip	☐ PeachPuff	☐ Peru	☐ Pink
☐ Plum	☐ PowderBlue	☐ Purple	
R			
☐ Red	☐ RosyBrown	☐ RoyalBlue	
S			
☐ SaddleBrown	☐ Salmon	☐ SandyBrown	☐ SeaGreen
☐ SeaShell	☐ Sienna	☐ Silver	☐ SkyBlue
☐ SlateBlue	☐ SlateGray	☐ Snow	☐ SpringGreen
☐ SteelBlue			
T			
☐ Tan	☐ Teal	☐ Thistle	☐ Tomato
☐ Transparent	☐ Turquoise		
V			
☐ Violet			
W			
☐ Wheat	☐ White	☐ WhiteSmoke	
Y			
☐ Yellow	☐ YellowGreen		

1.4 : Function description of Soft-GRAF HMI objects

Please refer to the section 1.2.1 for the basic concept of the Soft-GRAF HMI object.
Please refer to the section 1.3 for setting the correct value for colors.

All Soft-GRAF functions have only one Boolean return value and it always returns TRUE.

1.4.1: g_Page ( ) - Create a HMI Page

g_Page(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Pic_ , More_)

The Soft-GRAF HMI project must create the first HMI page (Page 1). It is the first page displayed when power up the PAC.

g_Page( ) can create a Soft-GRAF HMI page. The Soft-GRAF Page is the basic window and it will display all other HMI objects on it. So please must create the g_Page( ) first then create other HMI objects which disply on it.

Parameters:

NetW_	Integer	useless for the g_Page( ). set it as 0.
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	useless for the g_Page( ). set it as 0.
W_H_	Integer	useless for the g_Page( ). set it as 0.
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;White' (refer to section 1.3)

Title_   Message
  The first text defines the language encoding for all HMI objects on this Page.
  The second text defines the text displayed on the top-left position on this page.
  If the second text is '' (empty text), it means no displaying the Title area.
  For ex., 'UTF-8;;Page No. 1' means the language encoding is UTF-8 (English) ,
     top-left text is "Page No. 1"
  For ex., ';;Hi~' , there is no encoding set. It means using English. Top-left text is "Hi~"
  For ex., 'big5;;<Traditional Chinese Character here>' means the language encoding
     is big5 (Traditional Chinese Character) .
  For ex., 'gb2312;;<Simplified Chinese Character here>' means the language encoding
     is gb2312 (Simplified Chinese Character) .

Pic_	Message	Reserved for future usage. Set it as '' (empty text)
More_	Message	Reserved for future usage. Set it as '' (empty text)

1.4.2: g_Login ( ) - Create a Login button

g_Login(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , ToPage_ , More_)

g_Login( ) creates a Login button.When user press it, a keyboard will display and requests the user to key-in a password. There are max. 12 characters in a password (only number 0 to 9). This g_Login object can only put on the Page No. 1 and only one g_Login allowed.

The Soft-GRAF driver in the PAC will read a file which store max. 10 passwords in txt formate when user press the g_Login button. If user key-in a correct password (listed in the file), the Soft-GRAF HMI will switch to one another Page. If user key-in a wrong password, the Soft-GRAF HMI will display a message and not switching to one another page (Stay at the same Page No. 1). If password.txt file doesn't exist, it will stay at Page 1.

The Soft-GRAF HMI can recognize max. 10 passwords . Their level is from 1 to 10. The file can have max. 10 rows in it to represent the passwords of level 1 to 10. Each row can have max. 12 characters (number 0 to 9 only) plus <CR><LF> character at the end. For ex., the following file 's level 1 password is 123, and level 2 password is 567890 and level 3 password is 1357246.

```
123
567890
1357246
```

Parameters:
NetW_	Integer	useless for the g_Login( ). set it as 0.
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0020.
W_H_	Integer	width and height, for ex., 80_0032 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)

   Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login, g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_   Message
   The first text defines the text displayed on the button. Default is 'Login'
   The second text is the message displayed if login fails. Default is 'Access denied !'
   The third text defines the file path and name which stores passwords. If user doesn't set the third text. The Soft-GRAF will look for the following file path and name \system_disk\isagraf\sofgrafy\password.txt .
    For ex., 'Login;;Sorry,Wrong Number;;\system_disk\ISaGRAF\sofgrafy\passwd.txt' .

ToPage_   Message
   The first text defines the Page number to switch to when user login successfully.
   The second text defines the period of time in seconds to auto-Logout if user doesn't operate the Soft-GRAF HMI more than this period. Can be 0, 10 to 3600. Setting 0 means disable the auto-logout function.
   For ex., '2;;60' means the Soft-GRAF will switch to the Page No. 2 when user Login successfully. The auto-Logout period is 60 seconds.
   For ex., '3' means the Soft-GRAF will switch to the Page No. 3 when user Login successfully and disable the auto-Logout function.
   More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.3: g_Logout( ) - Create a Logout button

g_Logout(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , More_)

g_Logout( ) can create a Logout button. When user press it, it pop up a confirmation dialog. If user answer "Yes", the Soft-GRAF will Logout and switch to the Page No. 1.

Parameters:

NetW_	Integer	useless for the g_Logout( ). set it as 0.
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0020.
W_H_	Integer	width and height, for ex., 80_0032 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)

　　Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login, g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_　　　Message

　The first text defines the text displayed on the button. Default is 'Logout'
　The second text defines the message displayed on the confirmation dialog.
　For ex., 'Logout;;sure to Logout ?'

More_　　　Message　　Reserved for future usage. Set it as '' (empty text)

1.4.4: g_ToPage( ) - Create a switch-page button

g_ToPage(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , ToPage_ , Level_ , Ask_ , More_)

g_ToPage( ) can create a switch-page button .

Parameters:

NetW_   Integer   useless for the g_ToPage( ). set it as 0.

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 80_0032 (refer to section 1.2.1)

Font_   Integer   text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_   Message   ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)
    Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login,
           g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_   Message
    The first text defines the text displayed on the button.
    The second text defines the message displayed if user's Level is lower than "Level_" .
    The third text defines the text displayed on the confirmation dialog if "Ask_" is '1' .
    For ex., 'To-Page3;;Sorry !;;Are you sure ?'

ToPage_   Message   defines the Page No. to switch to. For ex., '3' .

Level_   Message
    Can be '0' to '9' , user 's Login Level shoud larger or equal to this value to swtich page.
    If don't want to restrict any user, please set it as '0' or '' (empty text)
    For ex., if user has Login as Level 1 (refer to the description of "g_Login"), and this
        "Level_" setting is '0' or '1' or '' (empty text), then switch page is allowed.
         However if "Level_" is   '2' to '9' , not allowed to switch page.

Ask_   Message   '1' need confirmation ,   '0' no confirmation, just do it.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.5: g_Label( ) - Display a Label

g_Label(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Align_ , More_)

g_Label( ) can display a label.

Parameters:

NetW_	Integer	useless for the g_Label( ). set it as 0.
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0020.
W_H_	Integer	width and height, for ex., 80_0032 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;White' (refer to section 1.3)
Title_	Message	defines the displayed label, for ex., 'Channel 2: '
Align_	Message	'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'
More_	Message	Reserved for future usage. Set it as '' (empty text)

1.4.6: g_B_Led( ) - Display a LED to show a Boolean value

g_B_Led(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , More_)

g_B_Led( ) can display a LED picture to show a Boolean value.

Parameters:

NetW_   Integer   The network address number of the relative Boolean variable.
If set as 0, it always displays the LED color which belong to the Boolean value – False.
If set as 1 to 8191, it displays different LED color depends on the Boolean value.

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 32_0032 (refer to section 1.2.1)

Font_   Integer   text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_   Message   (refer to section 1.3)
     The first text defines the LED color when Boolean value is False.
     The second text defines the LED color when Boolean value is True.
     For ex., 'Black;;Red' ,
       The LED display as Black color when Boolean value is False.
       The LED display as Red color when Boolean value is True.

Title_   Message
   The first text defines the text displayed on the LED when Boolean value is False.
   The second text defines the text displayed on the LED when Boolean value is True.
   The third text defines the LED shape, 0: ellipse, 1: rectangle. Default is 0: ellipse.
   For ex., 'OFF;;ON;;1' display OFF when Boolean value is False, display ON when
     value is True. The shape is rectangle.
   For ex., ';;ON;;0' display ON when value is True. The shape is ellipse.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.7: g_B_Val( ) - Display a text to show a Boolean value

g_B_Val(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Blink_ , OffOn_ , Align_ ,
　　　More_)

g_B_Val( ) can display a text to show a Boolean value.

Parameters:

NetW_	Integer	The network addr. of the relative Boolean variable. (1 - 8191)
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0020.
W_H_	Integer	width and height, for ex., 60_0024 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_　　　Message　　　(refer to section 1.3)
　　The first text defines the ForeColor when Boolean value is False.
　　The second text defines the BackColor when Boolean value is False.
　　The third text defines the ForeColor when Boolean value is True.
　　The fourth text defines the BackColor when Boolean value is True.
　　For ex., 'White;;Black;;Yellow;;Black'

Title_　　　Message　　　a text to display on the left of the main text. Can be '' (empty)

Blink_　　　Message
　The first text defines to blink or not when Boolean value is False, 1: blink, 0: no blink
　The second text defines to blink or not when Boolean value is True, 1: blink, 0: no blink
　　For ex., '0;;1' or ';;1' means to blink when value is True .
　　For ex., '1;;1' means to blink when value is True or False.
　　For ex., '1;;0' or '1;;' means to blink when value is False.
　　For ex., '0;;0' or ';;' or '' (empty) means no blink when value is True or False.

OffOn_　　　Message
　　The first text defines the main text displayed when Boolean value is False.
　　The second text defines the main text displayed when Boolean value is True.
　　For ex., 'Stop;;Moving'

Align_　　　Message　　　'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'

More_　　　Message　　　Reserved for future usage. Set it as '' (empty text)

1.4.8: g_WD_Val( ) - Display a 16-bit integer value

g_WD_Val(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Blink_ , Limit_ , Dot_ , Align_ , Unit_ , More_)

g_WD_Val( ) can display a short integer value (16-bit signed integer) .

Parameters:

NetW_	Integer	The network addr. of the relative Integer variable. (1 - 8191)
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0120.
W_H_	Integer	width and height, for ex., 60_0020 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 9_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;White' (refer to section 1.3)
Title_	Message	

The first text is to display on the left of the main text. Can be '' (empty)

The 2nd to 5th text defines the conversion table.

For ex., to convert the original value (-32768 to +32767) to become (-10.0 to +10.0), then set Title_ as ';;-32768;;32767;;-10.0;;10.0' . If the value is 8192, then it will be converted and display as about 2.5 .

For ex., set Title_ as ';;' means no conversion. If the value is 8192, it display as 8192.

Blink_   Message

The first text defines to blink or not when integer is inside the normal value range.

The second text defines to blink or not when integer smaller or equals to low limit.

The third text defines to blink or not when integer larger or equals to high limit.

For ex., '0;;1;;1' means no blink when value is in normal range and blink when value is <= low Limit and blink when value >= high Limit.

Limit_   Message

If defines a conversion table in Title_, the limit value is the value after conversion.

The first text defines the value of low Limit.

The second text defines the text to display when value is smaller or equals to low limit. If setting as empty text, it means display the integer value (no display as text).

The third text defines the ForColor when value is smaller or equals to low limit.

The fourth text defines the BackColor when value is smaller or equals to low limit.

The fifth text defines the value of high Limit

The sixth text defines the text to display when value is larger or equals to high limit. If setting as empty text, it means display the integer value (no display as text).

The seventh text defines the ForColor when value is larger or equals to high limit.

The eighth text defines the BackColor when value is larger or equals to high limit.

For ex., '-1000;;;;Blue;;Gray;;5000;;High-Value;;White;;Red' means when integer is smaller or equal to -1000, it display as integer value, ForeColor is Blue, BackColor is Gray. When value larger or equal to 5000, display as "High-Value", ForeColor is White, BackColor is Red.

Dot_   Message   defines the number of digits displayed after the "." .

'0 ' means no display "." , '1' to '6' display "."

For ex., If value is 12345 and Dot_ is set as '2' , it display as 123.45

For ex., If value is 12345 and Dot_ is set as '0' or '' (empty) , it display as 12345

Align_   Message   'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'

Unit_   Message   a text to display on the right of the main text. Can be '' (empty)

For ex., Title_ as 'H=' , Unit_ as ' cm' and if value is 162, then displays H=162 cm

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.9: g_N_Val( ) - Display a 32-bit integer value

g_N_Val(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Blink_ , Limit_ , Dot_ ,
        Align_ , Unit_ , More_)

g_N_Val( ) can display a long integer value (32-bit signed integer) .

Parameters:

NetW_   Integer   The network addr. of the relative Integer variable. (1 - 8191)
P_   Integer   Page number, can be 1 to 200.
X_Y_   Integer   the coordinate of the starting position. For ex., 30_0120.
W_H_   Integer   width and height, for ex., 60_0020 (refer to section 1.2.1)
Font_   Integer   text size and style, for ex., 9_1 (refer to section 1.2.1)
Color_   Message   ForeColor, BackColor. for ex., 'Red;;White' (refer to section 1.3)
Title_   Message

    The first text is to display on the left of the main text. Can be '' (empty)
    The 2nd to 5th text defines the conversion table.
    For ex., to convert the original value (-32768 to +32767) to become (-10.0 to +10.0),
      then set Title_ as ';;-32768;;32767;;-10.0;;10.0' . If the value is 8192, then it will
      be converted and display as about 2.5 .
    For ex., set Title_ as ';;' means no conversion. If the value is 8192, it display as 8192.

Blink_   Message

    The first text defines to blink or not when integer is inside the normal value range.
    The second text defines to blink or not when integer smaller or equals to low limit.
    The third text defines to blink or not when integer larger or equals to high limit.
    For ex., '0;;1;;1' means no blink when value is in normal range and blink when value
      is <= low Limit and blink when value >= high Limit.

Limit_   Message

    If defines a conversion table in Title_, the limit value is the value after conversion.
    The first text defines the value of low Limit
    The second text defines the text to display when value is smaller or equals to low limit.
      If setting as empty text, it means display the integer value (no display as text).
    The third text defines the ForColor when value is smaller or equals to low limit.
    The fourth text defines the BackColor when value is smaller or equals to low limit.
    The fifth text defines the value of high Limit
    The sixth text defines the text to display when value is larger or equals to high limit.
      If setting as empty text, it means display the integer value (no display as text).
    The seventh text defines the ForColor when value is larger or equals to high limit.
    The eighth text defines the BackColor when value is larger or equals to high limit.
    For ex., '-1000;;;;Blue;;Gray;;52000;;High-Value;;White;;Red' means when integer
      is smaller or equal to -1000, it display as integer value, ForeColor is Blue, BackColor
      is Gray. When value larger or equal to 52000, display as "High-Value", ForeColor is
      White, BackColor is Red.

Dot_   Message   The number of digits displayed after the "." .
      '0 ' means no display "." , '1' to '6' display "."
    For ex., If value is 12345 and Dot_ is set as '2' , it display as 123.45
    For ex., If value is 12345 and Dot_ is set as '0' or '' (empty) , it display as 12345

Align_   Message   'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'
Unit_   Message   a text to display on the right of the main text. Can be '' (empty)
    For ex., Title_ as 'H=' , Unit_ as ' cm' and if value is 162, then displays H=162 cm
More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.10: g_F_Val( ) - Display a 32-bit float point value

g_F_Val(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Blink_ , Limit_ , Dot_ ,
         Align_ , Unit_ , More_)

g_F_Val( ) can display a 32-bit floating point value .

Parameters:
NetW_	Integer	The network addr. of the relative Float variable. (1 - 8191)
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0120.
W_H_	Integer	width and height, for ex., 60_0020 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 9_1 (refer to section 1.2.1)
Color_	Message	ForeColor, BackColor. for ex., 'Red;;White' (refer to section 1.3)
Title_	Message	

   The first text is to display on the left of the main text. Can be '' (empty)

   The 2nd to 5th text defines the conversion table.

   For ex., to convert the original value (-3276.8 to +3276.7) to become (-10.0 to +10.0),
     then set Title_ as ';;-3276.8;;3276.7;;-10.0;;10.0' . If the value is 819.2, then it will
     be converted and display as about 2.5 .

   For ex., set Title_ as ';;' means no conversion. If the value is 819.2, it display as 819.2

Blink_   Message

   The first text defines to blink or not when value is inside the normal value range.

   The second text defines to blink or not when value is smaller or equals to low limit.

   The third text defines to blink or not when value is larger or equals to high limit.

   For ex., '0;;1;;1' means no blink when value is in normal range and blink when value
     is <= low Limit and blink when value >= high Limit.

Limit_   Message

   If defines a conversion table in Title_, the limit value is the value after conversion.

   The first text defines the value of low Limit

   The second text defines the text to display when value is smaller or equals to low limit.
     If setting as empty text, it means display the float value (no display as text).

   The third text defines the ForColor when value is smaller or equals to low limit.

   The fourth text defines the BackColor when value is smaller or equals to low limit.

   The fifth text defines the value of high Limit

   The sixth text defines the text to display when value is larger or equals to high limit.
     If setting as empty text, it means display the float value (no display as text).

   The seventh text defines the ForColor when value is larger or equals to high limit.

   The eighth text defines the BackColor when value is larger or equals to high limit.

   For ex., '-123.5;;;;Blue;;Gray;;999.9;;Too-Big;;White;;Red' means when float value
     is smaller or equal to -123.5, it display as float value, ForeColor is Blue, BackColor
     is Gray. When value larger or equal to 999.9, display as "Too-Big", ForeColor is
     White, BackColor is Red.

Dot_	Message	defines the number of digits displayed after the ".".

     '0 ' means no display "." , '1' to '6' display ".".

   For ex., If value is 123.456 and Dot_ is set as '2' , it display as 123.45

   For ex., If value is 123.456 and Dot_ is set as '0' or '' (empty) , it display as 123

Align_	Message	'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'
Unit_	Message	a text to display on the right of the main text. Can be '' (empty)

   For ex., Title_ as 'H=' , Unit_ as ' cm' and if value is 16.2, then displays H=16.2 cm

More_	Message	Reserved for future usage. Set it as '' (empty text)

1.4.11: g_B_Pic( ) - Display a picture to show a Boolean value

g_B_Pic(NetW_ , P_ , X_Y_ , W_H_ , File1_ , File2_ , File3_ , More_)

g_B_Pic( ) can display a picture (JPG, PNG, GIF, BMP format) to show a Boolean value. (Recommend not using the BMP format. It will consume the memory a lot)

Parameters:

NetW_ Integer The network addr. of the relative Boolean variable. (1 – 8191)
If setting as 0, it always display the first picture.
P_ Integer Page number, can be 1 to 200.
X_Y_ Integer the coordinate of the starting position. For ex., 30_0020.
W_H_ Integer width and height, for ex., 100_0090 (refer to section 1.2.1).
If the picture width or height exceeds the W_H_, the exceeding part will hide.
File1_ ~ File3_ Message
List the file name of pictures one by one.
All the listed files should be stored in the PAC's \System_Disk\ISaGRAF\sofgrafy\ .
Max. two pictures for g_B_Pic( ) to display.
For ex., if File1_ is '\gif\Fan04-s-(060).gif;;\gif\Fan04-s-(061).gif' and File2_ and File3_
are all '' (empty),
When value is False, it display the "\gif\Fan04-s-(060).gif" picture.
When value is True, it display the "\gif\Fan04-s-(061).gif" animate picture.
If setting "NetW_" as 0, it always display the "\gif\Fan04-s-(060).gif" picture.
More_ Message Reserved for future usage. Set it as '' (empty text)

How does the Soft-GRAF driver distinguish the picture animate or not ?

The animate picture file should be named as *(ABC).gif. The ABC is three number (0 to 9). If the picture format is correct and the file name is correct, the Soft-GRAF driver will display it as animate picture. The AB defines the amount of pictures to be animate, can be 02 to 99. The C defines the time period to switch pictures, can be 0 to 9. If C is 0, it means the picture is not animate. The unit of C is about 0.125 seconds for XP-8xx7-CE6 PAC, while is about 0.25 seconds for WP-8xx7 and VP-2xW7 PAC.
For ex., '\gif\Fan04-s-(062).gif' means the file is an animate picture. It contains 6 pictures. The switching time is about 2 x 0.125 = 0.25 seconds for the XP-8xx7-CE6 PAC (about 0.5 seconds if running in the WP-8xx7 and VP-2xW7PAC).
For ex., '\gif\Fan04-s-(060).gif' is not an animate picture because the switching time is 0.

The following picture is the content in the \gif\Fan03-s-(041).gif . It is consist of 4 small pictures to become a big picture (from left to right). The Soft-GRAF driver will display it as animated picture.

User can find the default burned-in pictures in the following CD-ROM or web site.
WP-8xx7 CD:\napdos\isagraf\wp-8xx7\driver\wp-8x47\1.28\sofgrafy\
XP-8xx7 CD:\napdos\isagraf\xp-8xx7-ce6\driver\1.07\sofgrafy\
VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\driver\1.19\sofgrafy\ or

the downloaded ZIP file at www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131

1.4.12: g_N_Pic( ) - Display a picture to show a Integer value

g_N_Pic(NetW_ , P_ , X_Y_ , W_H_ , File1_ , File2_ , File3_ , More_)

g_N_Pic( ) can display a picture (JPG, PNG, GIF, BMP format) to show an Integer value.
(Recommend not using the BMP format. It will consume the memory a lot)

Parameters:

NetW_   Integer   The network addr. of the relative Integer variable. (1 – 8191)
                            If setting as 0, it always display the first picture.
P_   Integer   Page number, can be 1 to 200.
X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.
W_H_   Integer   width and height, for ex., 80_0080 (refer to section 1.2.1).
        If the picture width or height exceeds the W_H_, the exceeding part will hide.
File1_ ~ File3_   Message
    List the file name of pictures one by one. Max. 50 pictures for Integer value 0 to 49.
    All the listed files should be stored in the PAC's \System_Disk\ISaGRAF\sofgrafy\ .
    For ex., '\Led\Led08-s-0.gif;;\Led\Led08-R-s-1.gif;;\gif\Fan04-s-(061).gif' and
        File2_ and File3_ are all '' (empty),
    When value is 0, it display the "\Led\Led08-s-0.gif" picture.
    When value is 1, it display the "\Led\Led08-R-s-1.gif" picture.
    When value is 2, it display the "\gif\Fan04-s-(061).gif" animate picture.
    If setting "NetW_" as 0, it always display the "\Led\Led08-s-0.gif" picture.
More_   Message   Reserved for future usage. Set it as '' (empty text)

How does the Soft-GRAF driver distinguish the picture animate or not ?

The animate picture file should be named as *(ABC).gif. The ABC is three number (0 to 9). If the picture format is correct and the file name is correct, the Soft-GRAF driver will display it as animate picture. The AB defines the amount of pictures to be animate, can be 02 to 99. The C defines the time period to switch pictures, can be 0 to 9. If C is 0, it means the picture is not animate. The unit of C is about 0.125 seconds for XP-8xx7-CE6 PAC, while is about 0.25 seconds for WP-8xx7 and VP-2xW7 PAC.
For ex., '\gif\Fan04-s-(062).gif' means the file is an animate picture. It contains 6 pictures. The switching time is about 2 x 0.125 = 0.25 seconds for the XP-8xx7-CE6 PAC (about 0.5 seconds if running in the WP-8xx7 and VP-2xW7PAC).
For ex., '\gif\Fan04-s-(060).gif' is not an animate picture because the switching time is 0.

The following picture is the content in the \gif\Fan03-s-(041).gif . It is consist of 4 small pictures to become a big picture (from left to right). The Soft-GRAF driver will display it as animated picture.

User can find the default burned-in pictures in the following CD-ROM or web site.
  WP-8xx7 CD:\napdos\isagraf\wp-8xx7\driver\wp-8x47\1.28\sofgrafy\
  XP-8xx7 CD:\napdos\isagraf\xp-8xx7-ce6\driver\1.07\sofgrafy\
  VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\driver\1.19\sofgrafy\   or

the downloaded ZIP file at www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131

1.4.13: g_N_Text( ) - Display a text to show an Integer value

g_N_Text(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Blink_ , Align_ , Unit_ , Text1_ , Text2_ , Text3_ , Text4_ , More_)

g_N_Text( ) can display a different text by the value of an integer variable .

Parameters:

NetW_ | Integer | The network addr. of the relative Integer variable. (1 – 8191)
If setting as 0, it always display the first text.

P_ | Integer | Page number, can be 1 to 200.

X_Y_ | Integer | the coordinate of the starting position. For ex., 30_0020.

W_H_ | Integer | width and height, for ex., 80_0020 (refer to section 1.2.1).

Font_ | Integer | text size and style, for ex., 9_1 (refer to section 1.2.1)

Color_ | Message | (refer to section 1.3)
The first text defines the ForeColor, while the second text defines the BackColor.
The (3rd, 4th, 5th) , (6th, 7th, 8th) , ... , are for setting the ForeColor and BackColor
for some special value, max. 10 special values.
For ex., 'Blue;;LightGray;;5;;White;;Red;;7;;Yellow;;Black', means
if value is 5, then display the relative text with ForeColor= White, BackColor= Red.
if value is 7, then display the relative text with ForeColor= Yellow, BackColor= Black.
if value is not 5 and not 7, then display the relative text with ForeColor= Blue,
BackColor= LightGray.

Title_ | Message | a text to display on the left of the main text. Can be '' (empty)

Blink_ | Message | Defines some special value which will blink the displayed text.
For ex., '3;;7;;12' means if value is 3 or 7 or 12, the displayed text will blink.
No blink for other value.
For ex., '' (empty text) means no blick for all value.

Align_ | Message | 'L' for Left align , 'C' for Center , 'R' for Right align. Default is 'L'

Unit_ | Message | a text to display on the right of the main text. Can be '' (empty)
For ex., Title_ as 'Sex=' , Unit_ as '' (empty) and if the display text is 'Female' , then it
will display "Sex=Female"

Text1_ ~ Text4_ | Message | Defines the displayed text for integer value 0 to 49.
The text length of the Text1_ to Text4_ can not exceed 255 characters. Some
language character exactly occupy 2 characters (like Chinese)
max. 50 texts for integer value 0 to 49.
For ex., if Title_ and Unit_ are all '' (empty)
Text1_ is 'Too Short;;Too Long;;Too Big' (Text1_ can not exceed 255 char.)
Text2_ is 'Too Small;;Too-Dirty'   (Text2_ can not exceed 255 char.)
Text3_ and Text4_ are '' (empty)
Then if integer value is 0, display "Too Short" , if 1 display "Too Long" ,
if 2 display "Too Big" , if 3 display "Too Small" , if 4 display "Too-Dirty"

More_ | Message | Reserved for future usage. Set it as '' (empty text)

1.4.14: g_B_inp( ) - Create a button to input a Boolean value

g_B_inp(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Mode_ , Level_ , Ask_ ,
　　　Test_ , More_)

g_B_inp( ) create a button, when user press it, it display a keyboard to input a Boolean.

Parameters:

NetW_	Integer	The network addr. of the relative Boolean variable. (1 – 8191)
P_	Integer	Page number, can be 1 to 200.
X_Y_	Integer	the coordinate of the starting position. For ex., 30_0020.
W_H_	Integer	width and height, for ex., 50_0020 (refer to section 1.2.1)
Font_	Integer	text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_　　Message　　For ex., 'Black;;;;Red' (refer to section 1.3)
　　Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login,
　　　　　g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).
　　The first text is the ForeColor when Boolean value is False.
　　The second text is the BackColor when Boolean value is False. (set it as '')
　　The third text is the ForeColor when Boolean value is True.
　　The fourth text is the BackColor when Boolean value is True. (set it as '')

Title_　　Message

　The first text define the text displayed on the button. If it is '' (empty text), then
　　　display it as a Boolean text.
　The second text defines the text to display when Boolean value is False, default is 'OFF'
　The third text defines the text to display when Boolean value is True, default is 'ON'
　(Note : the second and third text are useless if the first text is not '')

Mode_　　Message
　　The first text defines the input mode of the Boolean value.
　　　0: normal (Can input FALSE or TRUE) ,
　　　1: only input FALSE
　　　2: only input TRUE
　　　3: first input TRUE, then after a time period, input   FALSE
　　　4: first input FALSE, then after a time period, input   TRUE
　　The second text defines the time period for mode 3 and 4. unit is second (1 - 10)
　　　for ex., '3;;2' means first input TRUE to the relative Boolean variable, then about
　　　　2 seconds later, input FALSE to the relative Boolean variable.

Level_　　Message
　　Can be '0' to '9' , user 's Login Level shoud larger or equal to this value to input.
　　If don't want to restrict any user, please set it as '0' or '' (empty text)
　　For ex., if user has Login as Level 1 (refer to the description of "g_Login"), and this
　　　"Level_" setting is '0' or '1' or '' (empty text), then input operation is allowed.
　　　However if "Level_" is '2' to '9' , not allowed to input.

Ask_　　　Message　　'1' need confirmation ,   '0' no confirmation, just do it.

Test_　　　Message　　'1' need password test ,   '0' no need it.

More_　　　Message　　Reserved for future usage. Set it as '' (empty text)

1.4.15: g_WD_inp( ) - Create a button to input a 16-bit integer value

g_WD_Val(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Limit_ , Level_ , Ask_ ,
         Test_ , More_)

g_WD_inp( ) create a button , when user press it, it display a keyboard to input a short
         integer (16-bit signed integer).

Parameters:

NetW_   Integer   The network addr. of the relative Integer variable. (1 – 8191)

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 50_0020 (refer to section 1.2.1)

Font_   Integer   text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_   Message   ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)
       Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login,
             g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_   Message   The first text defines the text displayed on the button.
       If the first text is '' (empty text) , it means display value on the button (not text).

Limit_   Message
     The first text defines the Min. value can be input.
     The second text defines the Max. value can be input.
     The third text defines the error message displayed if input value is smaller than Min.
        value. Default is 'Too small !'
     The fourth text defines the error message displayed if input value is larger than Max.
        value. Default is 'Too big !'
     For ex., '-9990;;999;;Value is too small;;Val is too big ' means the Min. input value
        is -9990, Max. input value is 999. If the input value is smaller than -9990, it display
        an error message "Value is too small". If input value is larger than 999, it display
        an error message "Value is too big"
    For ex., '-1995' means the Min. input value is -1995, no limitation for Max. input value,
    For ex., ';;300' means no limitation for Min. value and the Max. input value is 300.

Level_   Message
     Can be '0' to '9' , user 's Login Level shoud larger or equal to this value to input.
     If don't want to restrict any user, please set it as '0' or '' (empty text)
     For ex., if user has Login as Level 1 (refer to the description of "g_Login"), and this
        "Level_" setting is '0' or '1' or '' (empty text), then input operation is allowed.
        However if "Level_" is '2' to '9' , not allowed to input.

Ask_   Message   '1' need confirmation ,   '0' no confirmation, just do it.

Test_   Message   '1' need password test ,   '0' no need it.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.16: g_N_inp( ) - Create a button to input a 32-bit integer value

g_N_inp(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Limit_ , Level_ , Ask_ ,
        Test_ , More_)

g_N_inp( ) create a button , when user press it, it display a keyboard to input a long
        integer (32-bit signed integer).

Parameters:

NetW_   Integer   The network addr. of the relative Integer variable. (1 – 8191)

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 50_0020 (refer to section 1.2.1)

Font_   Integer   text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_   Message   ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)
    Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login,
            g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_   Message   The first text defines the text displayed on the button.
    If the first text is '' (empty text) , it means display value on the button (not text).

Limit_   Message
    The first text defines the Min. value can be input.
    The second text defines the Max. value can be input.
    The third text defines the error message displayed if input value is smaller than Min.
        value. Default is 'Too small !'
    The fourth text defines the error message displayed if input value is larger than Max.
        value. Default is 'Too big !'
    For ex., '-9990;;999;;Value is too small;;Val is too big ' means the Min. input value
        is -9990, Max. input value is 999. If the input value is smaller than -9990, it display
        an error message "Value is too small". If input value is larger than 999, it display
        an error message "Value is too big"
  For ex., '-1995' means the Min. input value is -1995, no limitation for Max. input value,
  For ex., ';;300' means no limitation for Min. value and the Max. input value is 300.

Level_   Message
    Can be '0' to '9' , user 's Login Level shoud larger or equal to this value to input.
    If don't want to restrict any user, please set it as '0' or '' (empty text)
    For ex., if user has Login as Level 1 (refer to the description of "g_Login"), and this
        "Level_" setting is '0' or '1' or '' (empty text), then input operation is allowed.
        However if "Level_" is '2' to '9' , not allowed to input.

Ask_   Message   '1' need confirmation ,   '0' no confirmation, just do it.

Test_   Message   '1' need password test ,   '0' no need it.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.17: g_F_inp( ) - Create a button to input a 32-bit float value

g_F_inp(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Limit_ , Dot_ , Level_ ,
       Ask_ , Test_ , More_)

g_F_inp( ) create a button, when user press it, it display a keyboard to input a float value

Parameters:

NetW_   Integer   The network addr. of the relative REAL variable. (1 – 8191)

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 50_0020 (refer to section 1.2.1)

Font_   Integer   text size and style, for ex., 10_1 (refer to section 1.2.1)

Color_   Message   ForeColor, BackColor. for ex., 'Red;;Silver' (refer to section 1.3)
       Note: The BackColor of the g_B_inp, g_WD_inp, g_N_inp, g_F_inp, g_Login,
              g_Logout and g_ToPage is fixed, not changeable (close to the Silver color).

Title_   Message   The first text defines the text displayed on the button.
       If the first text is '' (empty text) , it means display value on the button (not text).

Limit_   Message
       The first text defines the Min. value can be input.
       The second text defines the Max. value can be input.
       The third text defines the error message displayed if input value is smaller than Min.
          value. Default is 'Too small !'
       The fourth text defines the error message displayed if input value is larger than Max.
          value. Default is 'Too big !'
       For ex., '-99.9;;999.7;;Value is too small;;Val is too big ' means the Min. input value
          is -99.9, Max. input value is 999.7. If the input value is smaller than -99.9, it display
          an error message "Value is too small". If input value is larger than 999.7, it display
          an error message "Value is too big"
     For ex., '-19.95' means the Min. input value is -19.95, no limitation for Max. input value
     For ex., ';;30.08' means no limitation for Min. value and the Max. input value is 30.08.

Dot_   Message
       The number of digits displayed after the "." (useless if the "Title_" setting is not '')
          '0 ' means no display "." , '1' to '6' display "."
       For ex., If value is 123.456 and Dot_ is set as '2' , it display as 123.45
       For ex., If value is 123.45 and Dot_ is set as '0' or '' (empty) , it display as 123.

Level_   Message
       Can be '0' to '9' , user 's Login Level shoud larger or equal to this value to input.
       If don't want to restrict any user, please set it as '0' or '' (empty text)
       For ex., if user has Login as Level 1 (refer to the description of "g_Login"), and this
          "Level_" setting is '0' or '1' or '' (empty text), then input operation is allowed.
             However if "Level_" is '2' to '9' , not allowed to input.

Ask_   Message   '1' need confirmation , '0' no confirmation, just do it.

Test_   Message   '1' need password test , '0' no need it.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.4.18: g_Trace2( ) - Display a 2-axes or 1-axis moving trace

g_Trace2(NetW_ , P_ , X_Y_ , W_H_ , Font_ , Color_ , Title_ , Act_ , Limit_ , More_)

g_Trace2( ) can display a 2-axes (x , y) or 1-axis (x : Horizontal) or 1-axis (y : Vertical) moving trace map.

Parameters:

  NetW_   Integer
     The relative two Network address number of two ISaGRAF Integer (1 ~ 8191).
     These two integers mean the current coordinate of a moving point. The left value is
       the X-coordinate (horizontal), the right value is the Y-coordinate (vertical).
     For ex., 0010_0011 means display as 2-axes trace map, the X value is from the
       integer variable with Network address = 10 , the Y value is from the integer
       variable with Network address = 11
     For ex., 0020_0000 means display as 1-axis (X , horizontal) trace map.
        The X value is from the integer variable with Network address = 20.
     For ex., 0_0150 means display as 1-axis (Y , verticall) trace map.
        The Y value is from the integer variable with Network address = 150.

  P_   Integer   Page number, can be 1 to 200.

  X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

  W_H_   Integer   width and height, for ex., 250_0200 (refer to section 1.2.1)
     2-axes trace map : The width and height should at least 120. (W_H_ >= 120_0120)
     1-axis horizontal : The width at least 120, height at least 60 (W_H_ >= 120_0060)
     1-axis vertical : The width at least 60, height at least 120 (W_H_ >= 60_0120)

  Font_   Integer   text size and style, for ex., 9_1 (refer to section 1.2.1)
     Please set the text size of the g_Trace2 in the range from 6 to 10. For example,
       6_0 , 6_1 , 7_0 , 7_1, ... , 10_1. If setting size more than 10, it display it as 10 .

  Color_   Message   (refer to section 1.3)
     The first text defines the BackColor of the trace map. For ex., Black .
     The second text defines the color of the trace curve. For ex., SpringGreen.
     The third text defines the color of mesh and border. For ex., DarkGreen.
     The fourth text defines the color of the current point. For ex., White.
     For ex., 'Black;;SpringGreen;;DarkGreen;;White' .

  Title_   Message
     If the first text is '' (empty), it means no displaying the X and Y border value .
     If the first text is a integer value (can be 1 to 100,000), it means displaying both of
      X and Y border value and divide it by this integer value.
     If the second text is '' (empty), it means no displaying the current position value
      (at the bottom of the trace map).
     If the second text is a integer value (can be 1 to 100,000), it means displaying the
      current position value and divide it by this integer value.
     For ex., '1;;1' means display both of the X and Y border value (divided by 1) and
      also display the current position value (divided by 1) at the bottom.
     For ex., '100;;' means display the X and Y border value (divided by 100) and
      don't display the current position value at the bottom.

Act_   Message

The first text defines the Network addr. number of an Integer variable (1 ~ 8191).

This integer variable will control the "Trace_Type".

If the value of the relative integer is 0, no drawing . (type 0: stop)

If the value of the relative integer is 1, drawing both of trace curve and the current point . (type 1: drawing both)

If the value of the relative integer is 2, drawing only the current point . (type 2: drawing only current point)

If the Network addr. number is not set as 1 to 8191, it will use type 2 always.

User 's program can control this Integer variable to change the "Trace_Type".

The second text defines the Network addr. number of a Boolean variable (1 ~ 8191).

This Boolean variable will control the "Clear_Trace".

If the Boolean is True, the trace curve is cleared once, then the Soft-GRAF driver will set this value of the relative Boolean variable back to False automatically.

User 's program can control this Boolean variable to clear the old trace curve.

Limit_   Message   The first text defines the left limit value of the X-coordinate. (please set it as 0 for 1-axis vertical trace)

The second text defines the right limit value of the X-coordinate.

(please set it as 0 for 1-axis vertical trace)

If the right limit value is larger than the left limit value, it means the X value is increasing from left to right direction .

If the left limit value is larger than the right limit value, it means the X value is increasing from right to left direction .

The third text defines the bottom limit value of the Y-coordinate.

(please set it as 0 for 1-axis horizontal trace)

The fourth text defines the top limit value of the Y-coordinate.

(please set it as 0 for 1-axis horizontal trace)

If the top limit value is larger than the bottom limit value, it means the Y value is increasing from bottom to top direction .

If the bottom limit value is larger than the top limit value, it means the Y value is increasing from top to bottom direction .

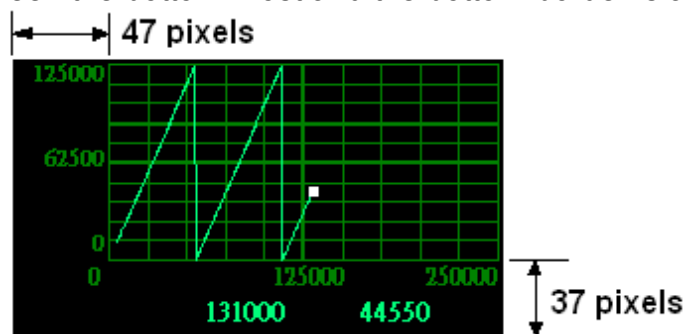For ex., '-10000;;990000;;-5000;;700000' means

left limit value is -10000, right limit value is 990000,

bottom limit value is -5000, top limit value is 700000

More_   Message   Reserved for future usage. Set it as '' (empty text)

The distance between the left-most and the left-border is about 47 pixels.

The distance between the bottom-most and the bottom-border is about 37 pixels.

1.4.19: g_Rect( ) - Draw a Rectangle

g_Rect(NetW_ , P_ , X_Y_ , W_H_ , Color_ , More_)

g_Rect( ) can draw a rectangle.

Parameters:

NetW_   Integer   useless for the g_Rect( ). set it as 0.

P_   Integer   Page number, can be 1 to 200.

X_Y_   Integer   the coordinate of the starting position. For ex., 30_0020.

W_H_   Integer   width and height, for ex., 250_0150 (refer to section 1.2.1)

Color_   Message
           The first text defines the border color (refer to section 1.3)
           The second is a integer value 1 ~ 10 which defines the width of the border.
           For ex., 'Green;;2' means border color is Green, border width is 2 pixels.

More_   Message   Reserved for future usage. Set it as '' (empty text)

1.5 : The description of some Soft-GRAF demo projects

Please refer to the section 1.4 for detailed function description of each HMI object.

1.5.1: sofgr_03 : Display 10 temperature values and 8 D/I values and control 8 D/O

Any of the VP-25W7, WP-8xx7 and XP-8xx7-CE6 PAC can run the "sofgr_03" project well if they have I/O slot 1 and 2. Please find two I/O cards, the i-87018z and i-87054W. Plug the i-87018z to the slot 1 of the PAC, while plug the i-87054W to the slot 2. This demo setup the i-87018z 's Ch.1 to Ch.10 as "ThermoCouple K-Type sensor" . If user want to use different Thermo-Couple sensors, please modify the "CHx_rang" setting in the ISaGRAF IO connection > i_87018z.

Note: The leftmost I/O slot number is 0 for the VP-2xW7 and WP-8xx7 PAC, while slot number 1 for the XP-8xx7-CE6 PAC.

This demo stores the 10-Channel Thermo-Couple value in the ISaGRAF Integer variable "tempture01" to "tempture10". Their Network addresses are 17, 19, 21, ... , 35 . The 8-Channel D/I value are stored in the Boolean variable "DI_87054_01" to "DI_87054_08" . Their Network addresses are 1, 2, 3, ... , 8 . The 8-Channel D/O are stored in the Boolean variable "DO_87054_01" to "DO_87054_08" . Their Network addresses are 9, 10, 11, ... , 16 .

How to test ?

Please download the "sofgr_03" project to the PAC, then the below HMI picture will show up on the PAC 's monitor. The temperature setting "Chx_rang" in this demo is "100F" which means "Thermo-Couple K-type" and "Degree celsius" . It shows "broken" if the Temperature sensor is disconnected or broken . User can click any D/O button to ouput the i-87054W 's D/O.

1.5.2: sofgr_04 ~ sofgr_06 : Read process parameters from a file or store them.

sofgr_04 : data format is Float data , only handle one file.
sofgr_05 : data format is Integer data , only handle one file.
sofgr_06 : data format is Float data , handle serval files.

Any of the VP-25W7, WP-8xx7 and XP-8xx7-CE6 can run the above ISaGRAF projects well. These examples provide 20 process parameters for controlling the process. These parameter values will be stored in the "Working_Real.txt" file ("Working_Int.txt" for the "sofgr_05") in the PAC 's \System_Disk\ directory. The "Working_Real.txt" is a pure text file. It contains 2 rows, each has 10 REAL values (Integer values for the "sofgr_05"). It looks like the following.

2.2, 56.25, 1.9, 987.2, 1.0, 1.0, 5.6, 0.0, 0.0, 2.0
88.0, 0.0, 7.05, 0.0, 15.0, 0.0, 105.648, 0.0, 0.0, 2.222

The HMI picture uses 20 "g_F_Val" HMI objects ("g_N_Val" for the "sofgr_05") to display the currect working parameters (Their Network addresses are 101, 103, 105, ..., 139) . And there are 20 "g_F_inp" ("g_N_inp" for the "sofgr_05") for displaying and entering the new process parameters (Their Network addresses are 201, 203 , 205 , ... , 239) . There is one "g_B_VaL" HMI object to display the reading / storing file is "Data Ok" or "Data Error". Some "g_B_inp" buttons are placed on the bottom for "RE_LOAD" data or store data.

How to test ?

First download the "sofgr_06" project to the PAC by PC / ISaGRAF. The below HMI picture will show up on the PAC 's monitor. You may modify some values in the "New VAL" area. Then click the button on the right of "Which File" to select the file number, and then click the "Apply New Val" button to store it and apply the data to the working area.

Then power OFF the PAC and power it up again. You will find the new process parameters are displayed on the working area .

Soft-GRAF demo sofgr_06.pia

Welcome to the Soft-GRAF Demo 06. Please visit www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131

Working Val 01~20 (\System_Disk\Working_Real.txt)

2.200	56.250	1.900	987.200	1.000
1.000	5.600	0.000	0.000	2.000
88.000	0.000	7.050	0.000	15.000
0.000	105.648	0.000	0.000	2.222

New Val 01~20   Data Ok

2.200	56.250	1.900	987.200	1.000
1.000	5.600	0.000	0.000	2.000
88.000	0.000	7.050	0.000	15.000
0.000	105.648	0.000	0.000	2.222

Reload | Apply New VAL | Store Only No Apply | Which File : | 1 | \System_disk\Backup_Real_1.txt