

# **iFACE** Designer

# USER MANUAL

Version 2.00

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# **iFACE** Designer

# **NEW PROJECT**

Version 2.00

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This tutorial introduces how to install and use iFACE Designer. A practical project will be built through easy and fast operating method while using P10-N as an example. The project will be downloaded to HMI for users to easily realize the communication control with PLC.

### 1.1 **iFACE Designer Installation**

#### 1.1.1 Installation and Start

Install iFACE Designer in your personal computer where the project will be developed, designed and compiled. The project can be run in HMI or PC for monitoring the controller.

#### 1.1.2 System Specifications and Requirements

iFACE Designer is an HMI editor with powerful functions but without consuming too much of computer resources. If you wish to run iFACE Designer, the recommended basis system requirements are as follows:

Parameters	Recommended Specifications
RAM	1GB RAM (32-bit) or 2GB RAM (64-bit)
Processor	32- & 64-bit with 1 GHz or faster
OS	Microsoft Windows XP SP2 or above
	Microsoft Windows Vista
	Microsoft Windows 7 32- & 64- bit
	Microsoft Windows 8 32- & 64- bit

#### 1.1.3 Start iFACE Designer

You can choose to create an iFACE Designer icon for the installed program so that you can go to edit screen by double-click. Or you can also press [Start] Menu $\rightarrow$  [All Programs]  $\rightarrow$  [iFACE 1.6.x] (x is according to the installed version) and start iFACE Designer.





# 1.2 New Project

iFACE Designer has adopted the most intuitive Ribbon UI. You can click the icon when the upper-left corner and then start a new project after pressing [New Project ...].



#### 1.2.1 Selection of HMI

Selection Panel: select HMI or PC for the category. In the product list, select the model of HMI used for the project and then the detailed hardware specifications will be shown below.



Project name Select Panel	Series P-seri	ies • Field Setting
Model	Display Type	Resolution
1 P04-N	4.3" TFT	480X272
2 P07-N	7" TFT	800X480
3 P10-N	10.2" TFT	800X480
4 P12-N	12.1" TFT	1280X800
5 P15-N	15.4" TFT	1280X800
Model: P10-N Display Type: 10.2" TFT Resolution: 800X480 Color Depth: 64K RTC: Yes	CPU: Sitara AM335X RAM: 512MB Flash: 4GB Data Memory: 256KB Memory Card: SD	COM1: RS232/422/485 COM2: RS232/422/485 COM3: RS485/CAN Ethernet: 1x10/100Mbit USB: 1xDevice, 1xHost
		Next

#### 1.2.2 Selection of Controller

From [Communicator Port Setting]  $\rightarrow$  Select [Add Link].

Set the COM port (Default value COM1 is used in this example) used and select the vendor of the controller and the corresponding model (The vendor of the controller in this example is set to be Mitsubishi and the model is Mitsubishi FX3U Series). Set the communication format of the controller (It is set to be RS422, 9600, EVEN, 7, 1 in this example).

-		
Communicator	Port Setting	Link
Add Link	Delete Link	I Enabled
Add Node	Delete Node	Display Name: Link 1 Port: COM1 *
ia I Link 1 (1- □ I Station	-to-1) n 0	Link ID:         LC1         HMI Station ID:         0         *           Link Type:         1-to-1 (Direct Link) Data Refresh Rate:         30 msec -         -
		Select Controller
		Vendor     Model       Koyo     Mitsubishi AJ71       Lust     Mitsubishi AJ71 for AnA/AnU       Mitsubishi AJ71 Format4       Mitsubishi FR-A700       Modbus       Novakon       OPTEX       Omron       Current Driver Version:
		Communication Format Interface: RS422 * Baud rate: 9600 * Parity: EVEN * Data bits: 7 * Stop bits: 1 *
		Next

#### 1.2.3 View Settings

View all the parameters set previously. The screen will show the set parameters for users to view them again. If adjustment is needed, click the icons on the top row to return to previous page and adjust the settings.

After confirming that everything is correct, press [Create] to go to edit screen and start the design.

-	
Project Propert	ies
Project Name:	
HMI model:	P10-N
Orientation:	Landscape -
Controller:	
C	JM1 - Mitsubishi FX3U Series
	Create

## 1.3 Project Design

Next, we will explain the practical application of iFACE Designer. In this example, we will use buttons and indicators to connect the connection point of Mitsubishi FX3U Series PLC, Y0, Y1, Y2 for controlling PLC practically through COM port.

#### 1.3.1 New Widget – Button

A. [Widgets Library] on the edit area of the screen includes many different kinds of widgets. We select a button icon from the item [Button] and drag it onto the Screen.

	iFACE Designer 1.6.70 / untitled *	- C - X-
Common Setting Project Transmission Bit	utton Format Behavior	Options-
Name: kButton_6	2 Pet ON X	8 \$ Width: 60 \$
Type: Toggle -	Edit Instant Reaction Copy State 1 Align: Center * () Y: 2	1 C Height 60 C
Basic Simulate	State/Message State Icon Text/Alignment Text	Offset Widget Size
Screen Manager & Screen*		Widgets Library 6 ×
Default		A Filter O H -
		Balling Bally
-		PB-Wht =
		PB-Thm
Screen*		PB-1
outen	• ON •	••••••••••••••••••••••••••••••••••••••
		Indicator
		Numencal/lext Widget     Action Button
		User Widgets Library
		Filter 🔍 🔡 -
		Default Category
	2018/09/04 10:2	3
-		
Compile Result		e×
Errors		
Type Group Item Description Jump To		
Type Group nem beschpion samp to		
🔗 🔽 🚮 📂 🔭 Current Langua	English • Periodic interval Normal • Control Status 🗠 0 🖭 Zoon	n — 🛛 — — 100% 1:1 💢 🏢 • X 280 🕻 Y 130 🕻

B. We can control the PLC register effectively through the connection between widget and tag. As you can see on the Screen of the following figure, press [Bit Button] → [Basic] → [Tag] and enter Y0 and press Enter.



**C.** The software will search for matched widget automatically for the new tag name created. If the address is available, it will fill in the same address of the corresponding address automatically.

😡 Add Tag		<u>୧</u>
Tag Name Y0	Approximat Tags	Tags have same Address:
Link Link 1 -		
Address Y0		
Type Bit -		
Station ID *		
		Add Cancel

**D.** From [Bit Button]  $\rightarrow$  [State/Message]  $\rightarrow$  [Edit] to modify the text shown on the button.

Common Setting Project Transi	nission Bit Button	Format Behavior
Name: kButton_6 Tag: ∰ ∰ 上 Y0	Simulate Edit	2
Basic	Simulate	State/Message
Edit States         Edit States         Edit States         Add         Delete         State         Content         Value         0         Y0 OFF         1         Y0 ON         Ok	Y0 OFF	

According to the steps above, you can drag two more button widgets respectively onto the Screen and enter Y1 and Y2 for the tag names. Then, modify them to be [Y1 OFF], [Y1 ON] and [Y2 OFF], [Y2 ON] in edit states, respectively. It will be shown as in the following figure after completed.

	)	iFACE Designer 1.6.70 / untitled *		
Common	Setting Project Transmission Screen Name: Screen To: Add screen ID: Start-up Screen: Default/Screer Theme- Screen Screen	Quick Background Border Frame Layer Alignment Group Syle	Global G1 200 ms	Cptions-
ClipBoard		Drawing Placement		Draw Object
Screen Manager	× Screen*			Widgets Library 8 ×
Default			A	Filter 🛛 🛱 .
Screen*		YO ON Y1 ON Y2 ON 2018	2004 10.29	Button PB-BW PB-Wh PB-Thm PB-Thm PB-1 PB-2 PB-3 Button Button User Wedgets Library Filter Default Category
Compile Result				ē ×
Errors Type Group I	em Description Jump To			
	Current Lang: Eng · Periodic interv	l Normal · Control Status 🥢 0	🕑 Zoom − 100% 11 🔀	⊞ • X 250 ° ¥ 230 °

#### 1.3.2 New Widget-Indicator

Add new indicators to match the addresses of FX3U PLC register Y0, Y1, Y2. Monitor the change of the indicators through toggling the buttons on the screen.

E. Select the [Indicator] widget from [Widgets Library] and drag three indicator widgets as in the following figure. After completed, define the tag name connecting to the indicators respectively.

		iFACE Designer 1.6.70	/ untitled *		Ŀ	- 0
Common Settin	ng Project Transmission					Options~
Copy Paste Ac	Screen Name: Screen dd screen ID: 1 * Start-up Screen: Default/Scree * Screen Theme - Screen	und Quick Background Border Frame Style Style -	Layer Alignment Group Co	O Global G1 200 ms     O Cocal G2 1000 ms     mmand setting	✓ @ ∧	_
ClipBoard		Drawing	Placement		Draw Object	
Screen Manager # ×	Screen*				Widgets Library	8 ×
Default					Filter	€ # .
Screen*		YU DN	2018/04/0	34 10.20	Button     Button     Button     Button     Branp_1     Branp_2     Branp_3     Branp_6     Branp_6     Branp_6     Branp_6     Branp_7     Branp_6     Branp_7     Branp_6     Branp_7     Branp_6     Branp_7     Branp_6     Branp	ि () () () () () () () () () () () () ()
Compile Result						8 ×
Errors						
Type Group Item	Description Jump To					
	🔊 📴 Current Lang: <mark>Eng =</mark> Periodic inf	erval Normal Contro	ol Status 🦪 🛛 🗈	≫ Zoom -1 → 100% 1:1 )	K 🗐 • X 380 C Y	230 0

### 1.4 Show the Set Tag of the Widget on the Screen

The widget state bar is located at the bottom of the screen. You can use the icon to check the set tag information.

Current l	Langi <mark>Engi -</mark> Periodio	interval Normal	<ul> <li>Contro</li> </ul>	Status < 🛛 🛛	🗈 Zo	oom —	1:1 💢 🏢 •	X: 380	≎ <mark>Y:</mark> 230	A V
	Click the	icon to she	ow the s	set tag ir	nform	ation				

a. After pressing the icon 🖉 💽, tag information will be shown or hidden on the upper-left corner of the widgets as in the following figure.



b. Press the arrow beside the icon to go to detailed setting for screen widget information. You can set the size of 【Display Font】, 【Display Font Color】, 【Background Color】 and set whether to tick the options such as 【Show Tag Address】, 【Write Tag】, 【Read Tag】, 【Activate Tag】, 【Notify Tag】, 【Show Language IDs】, 【Show Key Bind】.

Screen Widget Information Setting					
Display Font:	Arial 6				
Display Font Color:					
Background Color:					
Show Tag Address					
✓ WriteTag ✓ ReadTag	ActivateTag NotifyTag				
Show Language IDs	Show Key Bind				
ОК	Cancel				

# 1.5 Project Download

We have completed a simple project example. The following steps will introduce how to download the project to HMI and how to actually connect to Mitsubishi FX3U PLC for monitoring.

#### 1.5.1 Compile

When finished editing the project, you need to save the project first and then compile this project. [Compile] will transform the project to downloadable \*.KPC/ \*.FMW files.

When editing, you may find errors or warnings. If warnings occurred, you can choose to neglect them since warnings will not affect the operation of the program. However, if errors occurred, then it is required to modify all errors and then compile successfully so that you can run this project smoothly.

Click [Project Transmission]  $\rightarrow$  [Compile] and start running project compile action.





#### 1.5.2 Transfer Setting

F. When the designed project is being compiled, press [Project Transmission]  $\rightarrow$  [Transfer Setting].



- G. You can choose to download or transfer and save the compiled project to the specified transfer media including [Removable Storage] (USB disk or SD card), [Ethernet 1-1], [USB Device] (through the transmission cable for USB device), [Local Disk] (its directory can be specified).
- **H.** USB disk will be used in this example.

Download Setting	×
Download Setting	
Download Function :	Application *
Transfer Media :	Removable Storage 🔹
Removable Storage Statu	Removable Storage
	Ethernet Probe Local Disk
[F:] 7854 MB	
Advanced Settings O	K Cancel Transfer>>

When downloading the project for the first time or changing software version, you need to download the firmware. For [Download Function], please select [Application w/ Firmware]. For adding widgets or screen later, select [Application].

I. [Transfer] will download the compiled \*.KPC / \*.FMW files onto HMI or the

specified devices.

🕼 Transfer	×
Press [Start] to proceed. Download Application To Removable Storage	
	0%
	START

- J. After pressing the [Start] button, it will show different screens based on transfer media. The transfer media chosen in this example is [Removable Storage] (USB disk). Hence, it is required to select the drive letter for the inserted disk and the name and content of the application.
- **K.** If you entered Chinese characters in the application name, then HMI will show garbled text. So, it is recommended to use only English words or numbers.

Select Drive	×
F: (7854MB)	
APP Name	DEMO
	OK Cancel

For other downloading methods, please refer to the chapter [24. Project Transmission Setting].

## 1.6 Run the Project

Next, we can download the project to HMI according to the following steps and begin testing the results of actually connecting HMI to PLC.

#### 1.6.1 Power On Test

When starting HMI, it will check whether the hardware items are normal. If errors are found during the test, it will show the test results on the screen. If the check results are normal, then it will return to system menu automatically.



#### 1.6.2 Project Transfer

Insert the USB disk with the saved \*.kpc / \*.fmw to HMI USB Host port as in the following figure.



L. Click HMI System Menu→ [File Transfer] function.

			Run Application		
Settings				0	
	COM Port		Ethermet		File Transfer
Q	Backlight		Display	$\bigcirc$	Calibration
	RTC	G	System Status	0	Miscellaneous

M. Go to the settings for [File Transfer].



N. Select [Firmware] and then click [OK] to go to the page [Select a firmware to copy to HMI]. As shown in the following figure, click PRelease1670.fmw firmware file first and then click [OK]. Wait until firmware update is finished, then the system will reboot HMI.

× Cancel	Select a firmware to copy to HMI	OK ✓
	PRelease 1670.fmw	
	Prev. 1/1 Next	

O. Once again, go to the settings for [File Transfer] and select [Application] and click [OK] to go to the page [Select an application to copy to HMI]. Select the project file we designed and download the project. As in the following figure, select the project file [Demo.kpc] first and then click [OK] to finish downloading the project.

× Cancel	Select a	n application	to copy to HMI	OK	<b>~</b>
	DEMO.kpc				
	P	Prev 1/1	Next		

#### 1.6.3 Connection between HMI and FX3G

Refer to the following figure based on the selected controller (FX3U in this example) and make a connection between HMI and Mitsubishi FX3G Series PLC through a cable.



After the above cable is actually being connected to PLC, return back to HMI System Menu $\rightarrow$  [Run Application] to run the application.

		Run Application		
ettings				
	COM Port	Ethermet	ны	File Transfer
	COM Port Backlight	Ethermet Display		File Transfer Calibration

The following figure shows the screen for the actual connection between P10-N and Mitsubishi FX3G PLC. When we pressed the buttons Y0 and Y2, the connection points Y0 and Y2 on PLC will change to ON immediately. The indicator for Y0 and Y2 on HMI will show the state change for the connection points on PLC immediately.







# **iFACE** Designer

# SCREEN

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# 2. Screen

All the widgets on HMI shall be loaded onto the screen. Hence, we shall understand the usage of the screen before understanding the application of HMI widgets.

### 2.1 Add Screen and Delete Screen

When opening a new project, the system will create a new screen automatically. However, when we need to create projects with more than one screen, then we need to add a new screen manually.

Add screen and delete screen are introduced below:

#### 2.1.1 Add Screen

Add screen includes [Add Screen] and [Add Sub Screen]. There are two ways to add:

 Select the function tab 【Common】→Screen→【Add Screen】 or 【Add Sub Screen】.



 In the blank space of [Screen Manager], right-click and a popup menu will be invoked and then click [Add screen after] or [Add sub-screen after].



#### 2.1.2 Delete Screen



- 1. Move your cursor to screen manager.
- 2. Right-click on the desired screen to be deleted.
- 3. After the popup menu is being invoked, select [Delete Screen].
- 4. After the dialogue for [Delete Screen] appeared, press [OK] and then the action of delete screen will be performed.



## 2.2 Screen Manager

[Screen Manager] is the screen management window for iFACE Designer. You can sort out the screens to different folders for convenient management and also you can move any screens to any folders.

	iFACE De	signer 1.6.70	
Common Setting Project Transmission Set Cut Copy Paste CupBeard Screen 12 Screen 12	Color Background Theme Screen - Crewing	Layer Algoment Group Placement Placement Communication Placement Periodic Interval	Options.
Screen Manager • × Screen • Sc Default Screen* Screen1* Scr	Screen Manager	2018/09/04 11-49	Widgets Library     # ×       Filter     Indicator       Indicator     Indicator       Numerical/Feature     Indicator       Numerical/Feature     Indicator       Static Ficture     Indicator       Static Ficture     Indicator       Meter     Indicator       User Widgets Library     # ×       Filter     Indicator       Default Category     Indicator
Errors Type Group Item Description Jump To	e <mark>English •</mark> Periodic interval •	Control Status 🥑 0 🗈 Zoom —II—	

 Screen Folder: mainly used for the folder menu. The folder name provided by the system is [Default]. Move your cursor to [Folder] and right-click and then a popup menu will be invoked.

#### Screen

Screen Manager	₽×	Screen Screen1
Default		Expand all
		Collapse all
		New Screen Folder Delete Folder Only Delete Folder with Screens
Screen*		Rename Folder
		Move Folder Upward
		Move Folder Downward
Screen1*		

- The popup menu provides the functions such as [New Screen Folder], [Delete Folder Only], [Rename Folder].
  - ♦ New Screen Folder: press [New Screen Folder] to add a new folder.

New Screen Fo	ol ? X
Folder Name	:
Folder A	
ОК	Cancel

- Enter the name of the new folder in folder name. The names support
   Chinese. [Folder A] is entered in this example. After entering, press
   [OK].
- Delete Folders: it is separated into [Delete Folder Only] and [Delete Folder with Screens].
- ♦ 【Delete Folder Only】: only delete the folder. All the screens in that folder will be moved to default folder automatically.
- 【 Delete Folders with Screens 】: delete the folder along with the screens contained in the folder.

Designer
Delete Category:Folder A and all the screens ?
OK Cancel

♦ Move to another folder: Move the selected screen to another folder.

For example, move [Screen 1] in the folder [Default] to [Folder A].

Screen Ma	nager 🗗 🗙	Screen		0	Scr	een	1		0
⊿ Def	ault 🔷					: :	: :	1	
ID: 1						· ·			
Scree	en*					· ·			
ID: 2			• •						
Sc	Add screen Add sub-sc Delete Scre	after reen after een				· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·
⊿ ID: 3	Cut Screen Copy Scree Paste Scre	en				· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·
	Rename So	creen		h					
Compi	Move to and	other folder	_		F	old	er /	4	

- 1. Move the cursor to the screen and right-click.
- 2. Select [Move to another folder] in the popup menu.
- 3. Finally, select the folder to be moved.

The contents of the screens being moved (including screen name, screen ID) will not be changed due to being moved to another folder.

#### 2.3 Start-up Screen and Screen ID

You can set the screen name, screen ID and start-up screen in the function tab [Common]  $\rightarrow$ Screen.

#### Screen

,				
		iface d	Designer 1.6.70	
Common Settin Project Transmission				
Sk Cut         Screen Name:         Screen           Copy         Paste         Ad         Screen ID:         1           Screen Start-up Screen:         Default/S         Start-up Screen:         Default/S	Scree V Color Background Theme Screen V Styl	ick Background Border Frame Style +	Layer Alignment Group	Communication command setting
ClipBoard Scree	en	Drawing	Placement	Periodic Interv
Screen Manager 🗗 🗙 😡 Screen 😡 S	creen1 😡 Screen2			
Default Default Screen*				

A. Screen Name

Screen name can not only specify the content of the screen, but also be used as the indicator for change screens setting using the action button. Hence, screen names will not be repeated within the same project.

B. Screen ID

Screen ID is a number for each screen and used as the indicator for the reference to change screens or displaying the current screens by PLC. Hence, screen IDs will not be repeated within the same project.

C. Start-up Screen

Start-up Screen will be the first executed screen after HMI is being powered on.

D. Display ID

Move the cursor to the preview screen on screen manager, it will display the ID of the screens.

#### 2.4 Background Screen

Background screen is mainly used as joint page for other screens. When there are parts of the content repeated in multiple screens, then you can consider using background screen. The biggest advantage is that when these settings required adjustments, you only need to adjust them once.



- **A.** First, decide which page to be set as the background screen (e.g. Screen1) and design the jointly used widgets on other screens.
- B. Click other page such as Screen.
- **C.** Select the function tab [Common]  $\rightarrow$  Background Screen.
- **D.** Tick the desired background screen (Screen1 in our example).
- E. By doing so you can see that the background screen Screen1 will be shown on Screen.

#### Remark:

- (1) Other screens can also be selected in background screen to be set as the background screen.
- (2) You cannot adjust the content of background screen directly on other screen; it is required to perform the adjustments on that background screen.



# **iFACE** Designer

# THE USE OF TAG

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# 3. Tag Setting

Tags can connect the specified address to send or receive values.

## 3.1 Add Tag

Fill in the name of the tag in tag name and press Enter on your computer keyboard, then add tag dialog will appear.

	Common S	etting	Project Transm	ission	Nur	nerical Widget
Name:	kNumInputDispla	y_1468				Max. 100
Tag:	💼 🏟 📔 D3		+0 R	Simula	) ata	Min. 0
Туре:	Numeric Display		<b>*</b>	onnon		Base System
	Basi	ic		Simul	ate	

**A.** It will search for PLC link, address and type by the tag name automatically. If there is a match, then it will automatically import the information for the parameters (link/address/type).

<b>()</b>	Add Tag				? ×
Ата	ag Name [	D3	Арьт	oximat Tags	Tags have same Address:
Lii Ac Ty St	nk [ /dress [ /pe [	Link 1 ~ D3 UINT(16) ~			
					Add Cancel

**B.** Remove Y in the tag name and retain the number 3, then the system will automatically search for similar tag names among current tags.

🕞 Add Tag	В		8
Tag Name	β	Approximat Tags	Tags have same Address:
Link	Link 1	M130 R1963	
Address	D3	M1033 R2483	
Туре	UINT(16)	• M1034 R30	
Station ID	Ŧ	R1973 R2493 M1003	
		R1983 R2503	
		M1013 R33 R31	
		R1993 M763	<b>_</b>
		Υ <u></u>	Add Cance

Change PLC address to D300, then it will automatically search for tag names that have the same PLC address in 【Tag Setting】.
 As in the figure below, there are 4 tags that have the same address PLC D300.

😡 Add Tag					? ×
Tag Nam	e	Approximat Tags	Та	gs have same A	Address:
Link	Link 1	]		1	2
C Address	D300	<u> </u>	1	D300	Ascii
Туре	UINT(16)		2	D300_1	INT(16)
			3	D300_2	UINT(16)
Station I			4	D300_3	UINT(32)
Clation					
			_	l	
				Modify	Cancel

## 3.2 **Tags**

Go to the tab  $\texttt{Setting} \rightarrow \texttt{General Settings} \rightarrow \texttt{Tag Setting}$ .

ick	Commo	on Se	tting	Project T	ransmission			
		-Fr			2	$\overline{\mathbf{x}}$	7	
PLC Setting	Tag Setting	Recipe	Alarm Service	Trigger Service	Data logger Service	System variables	Macro Editor	Macro Manager

After editing the information of the tag, you can drag and directly used them in corresponding tags of widgets by default and also connect them by applying other specific functions (alarms, recipes, etc.).

a. Open the dialog of tag setting and press 【Tags】.

Tag Setting	
Tag Operation     Options     Fit       Add     Delete     Add Many     Pair Command Table       Cache Setting     Q	Exact match
Tag Name Connector Type Address Con	ment
1 Tag1 InternalMemory Bit	Connector: InternalMemory
New tag	Data Type Bit       Station Number         \$       •         Matched Format:       \$0.0-\$1048574.f; \$2048-\$1048574 flash file         Set As Default
	Widgets containing the selected Tag.
	Category Screen Control Use T
	OK Cancel

- b. Add a new tag.
- A. After pressing [Add] button, the table below will add a new tag to the list. You can double-click the fields inside the table to change the setting of the tag.
- **B.** Or after clicking the tag which requires modification, the detailed set value of the current selected tag will be shown in the subwindow on the right side and also the modification can be made here.

٦	ags System	Information Tags	System Control	Tags Recipe	e Tags 🛛 🕒	
	Tag Name	Connector	Туре	Address	Comment	Connector: InternalMemory
1	Tag1	InternalMemory	UINT(8)	@1		
		Detaile	ed inform	he tag	Data Type       UINT(8)       Station Number         @ •       1         Matched Format:       @0-@65535	

31

c. Add multiple tags

**C.** After pressing the button [Add Multiple...], the dialog [Add Multiple Tags] will be opened.

Tag Setting	😡 Add Multiple Tags 🛛 🗙	
Tag Operation     Add     Delete     Add	-Address Setting Connector: InternalMemory * Data Type UINT(16) * Station Number *	Import/Export Import Export
Tags         System Information Tags         System           Tag Name         Connector         Tyr           1         Tag1         InternalMemory         UINT(8)	@ * 0 Matched Format: @0-@65535	mory   Station Number
9	Add Multiple Tags Prefix: T Suffix: K Sequential: Decimal Points: 2 \$ Start at: 1 \$ Same as PLC address: Address Increment: 1 \$ Total Tags: 16 \$	
	Т01К, T02К,, T16К ОК Сапсеl	een Control Use T

- **D.** [Address Setting] is for setting the type of connectors, data type, station number and starting address.
- E. [Add Multiple Tags] sets the applied tag names. You can choose
   [Sequential] or [Same as PLC address]. If you select [Same as PLC address], then please jump to item e.
  - a. Select [Sequential] to indicate that the tag name is defined sequentially by users.
  - b. First, set [Prefix] (T is set in this example) and [Suffix] (K is set in this example) for the tag name.
  - c. Set [Decimal Points] to decide the number of the digits for the tag name (2 is set in this example).
  - d. Set [Start at] to decide the starting value for the tag (1 is set in this example).
  - e. Set [Address Increment] to decide the increment value for tag (1 is set in this example).
  - f. Set [Total Tags] to decide quantities for new tags (16 is set in this example).

After pressing [OK], the new sequential tag name will be:

T (Prefix) 01 (2 digits, starting at 1) K (Suffix)...T16K (increment is 1 and the number of total tags is 16)

 g. It will create tag names for preview immediately based on the set information for new tags. If the settings were wrong, it will give out hints such as [Invalid Address] or [Invalid Setting].

	🐼 Add Multiple Tags	
	Address Setting	
	Connector: InternalMemory *	
	Data Type UINT(16)   Station Number	
	@ * 0	
	Matched Format:	
	@0-@65535	
Select	Add Multiple Tags b	
sequential	Prefix: T Suffix: K	
	a Sequential: c d	
	Decimal Points: 2   Start at: 1	If the tag has been
	e Same as PLC address:	If the tag has been
	Address Increment: 1 - Total Tags: 16 -	set correctly, then
	T01K, T02K,, T16K	error messages will
		not be shown hard
	OK Cancel	

h. Select [Same as PLC address], then the tag name will be the same as the actual PLC address.

	Add Multiple Tags
	Prefix: T Suffix: K
	Sequential:
	Decimal Points: 2 ‡ Start at: 1 ‡
Select "Same	Same as PLC address:         Address Increment:       1         Total Tags:       16
	@0, @1,, @15
	OK Cancel

🧷 Та	g Setting									
	Tag Operation –	Delete Add Ma	ny	ns Command Table Cache Setting	Filter Exact	match			nt/Export mport xport	
Та	Tags System Information Tags System Co									
	Tag Name	Connector	Туре	Sequer	ntial	names	IMemory	*		
1	T01K _	ptore-III		•						
2	T02K	nternalMemory	UINT(16)	(U)		Data Type	UINT(8)	Station Numb	er 🔹	
3	T03K	nternalMemory	UINT(16)	@2						
4	T04K	nternalMemory	UINT(16)	@3						
5	T05K	nternalMemory	UINT(16)	@4		Matched Fo	rmat:			
6	T06K	nternalMemory	UINT(16)	@5		@0-@6553	35			
7	т07К	nternalMemory	UINT(16)	@6						
8	T08K	nternalMemory	UINT(16)	@7						
9	T09K	nternalMemory	UINT(16)	@8						
10	T10K	nternalMemory	UINT(16)	@9						
11	T11K	nternalMemory	UINT(16)	@10		Set As Def	ault			
12	T12K	nternalMemory	UINT(16)	@11						
13	T13K	nternalMemory	UINT(16)	@12		Category	Screen	Control	Lise Ta	
14	T14K	nternalMemory	UINT(16)	@13		Category	Ocreen	Control	03012	
15	T15K	nternalMemory	UINT(16)	@14						
16	T16K	nternalMemory	UINT(16)	@15						
4						•	III		•	
								ОК	Cancel	

Add Delete Add Many							
Tags System Information Tags System Control to the tags							
1	ag Name	Connector	LINT(16)	Address	Comment	Connector: InternalMemory	
' >	@1	InternalMemony		@U @1			
2	@2	InternalMemory	UINT(16)	@' @2		Data Type UINT(16) * Station Number *	
1	@3	InternalMemory	UINT(16)	@2 @3		@ 15	
	@4	InternalMemory	UINT(16)	@4		Matched Format:	
3	@5	InternalMemory	UINT(16)	@5		@0-@65535	
7	@6	InternalMemory	UINT(16)	@0 @6			
3	@7	InternalMemory	UINT(16)	@7			
3	@8	InternalMemory	UINT(16)	@8			
10	@9	InternalMemory	UINT(16)	@9			
11	@10	InternalMemory	UINT(16)	@10		Cat Ao Default	
12	@11	InternalMemory	UINT(16)	@11		Set AS Delaut	
13	@12	InternalMemory	UINT(16)	@12		Widgets containing the selected Tag.	
14	@13	InternalMemory	UINT(16)	@13		Category Screen Control	
15	@14	InternalMemory	UINT(16)	@14			
16	@15	InternalMemory	UINT(16)	@15			
•	] -	J		E	J		

#### d. Export tag

Tag information can be exported into a \*.txt file. The text file can be opened and modified in Excel, then be imported back to iFACE Designer to enhance work efficiency.

Tag Operation	Options	Filter	Import/Export
Add Delete Add Many	Pair Command Table Cache Setting	Exact match	Import Export

F. In the dialog [Tag Setting], press [Export], then the dialog [Export File] will be invoked as in the figure below.
✓ 匯出檔案	ARCHIVE EXTRAG						X
	▶ 手冊 ▶	_	_	<b>▼ </b> <sup>4</sup> 7	搜尋手冊		٩
組合管理 ▼ 新増資料3	夾					•	0
☆ 我的最愛	名稱	修改日期	類型	大小			
🐌 Dropbox	🌗 Templates	2014/4/29 上午 1	檔案資料夾				
◎ 吊折的位罢							
AND							
🍃 煤體櫃							
🍰 Apps							
₩ 視訊							
圖片							
楊安夕璠(N)· tags	<u> </u>						_
	a (* txt)						
13 1878±(17) [X 1 18	4 ( 1979)						
▲ 晤藏咨判本				1	存檔(S)	取満	

- **G.** Set the directory and file name for the text file to be saved.
- H. Press [Save], then the text file will be exported.

The text file can be opened directly by Excel. For the convenience of editing, it is recommended to load the file using [Text Import Wizard] in Excel. The setting method is as follows:

- (1) Open Excel. Select [File]  $\rightarrow$  [Open].
- (2) Select [Text Files] for file type. After going into the directory where the text file is saved, find the text file and open it.
- (3) Now, Excel will open [Text Import Wizard] and complete the following operating procedure in order.
- (4) Step 3-1 of [Text Import Wizard] sets the original data type. The default is [Delimiter]. So, press [Next >] directly.

匯入字串稿靈 - 步驟 3 之 1	? <mark>×</mark>				
資料剖析精靈判定資料類型為 分隔符號。					
若一切設定無誤,諸選取 [下一步] ,或選取適當的資料類別。					
諸選擇最適合剖析您的資料的檔案類型: ● <u>分隔符號(①)</u> 一 用分欄字元,如逗號或 TAB 鏈,區分每一個欄位。 ◎ 固定寬度(₩) 一 每個欄位固定,欄位間以空格區分。					
起始列號(R): 1 → 檔案原始格式(O): 950: 繁體中文(Big5)	-				
) 預覚檔案 C∴tags.txt。					
1 ID 標籤名稱 X 連線 類型 地址 X 長度 X X X X	*				
4 3 T03K 1 0 3 02 1 1 0 0 0	-				
<	Þ				
<b>取消</b> (<上一步(B) 下一步(D) >	完成E				

(5) Step 3-2 of [Text Import Wizard] sets delimiters of the input data. Please tick [Tab] and then press [Next >].

匯入字串精靈 - 步驟 3 之 2	? <mark>X</mark>
您可在此畫面中選擇輸入資料中所包含的分隔符號,您可在預覽視窗內看到分欄的結果。	
分隔符號         ⑦ Tab 键(I)         ⑦ 分號(M)         □ 逗點(C)         ② 空格(S)         文字辨識符號(Q): "         其他(Q):	
ID     標籤名稱 K     連線 類型     地址 K     長度 K     K     K     K       1     T01K     1     0     3     90     1     1     0     0       2     T02K     1     0     3     91     1     1     0     0       3     T03K     1     0     3     92     1     1     0     0	•
取消(<上一步图)「下一步例)>	完成佢

(6) Step 3-3 of [Text Import Wizard] sets the data format of each field. You can first preview the result columns and select the desired set column, then set data format of the field. Since some symbols have their own special meaning in Excel (e.g. @), it is recommended to change the format of the field to [Text] to avoid problems when modifying.

After checking that everything is correct, press [Finish].

( 運入字串精靈 - 步驟 3 之 3
諸在此畫面選擇欲使用的欄位,並設定其資料格式。 欄位的資料格式 ● 一般(①) ● ⑦交字(①) ● 日期(型): YMD ▼ ● 不匯入此欄(①)
預覽分欄結果 (2)
────────────────────────────────────
<b>取消 &lt; 上一步(B)</b> (下一步(M) > ) <b>完成①</b>

I. After modifying the text file, press is to finish the steps for export tag and tag modification.

	tay m	ounica	uon.					M	odify th	e orig	inal
								tag	g name	and s	ave
	А	В	С	D	E	F		the	o filo		
1	ID	Tag Name	Х	Connector	Tree		Long		e me.		
2	1	ABC001		~	4	@0	1				
3	2	T02K	1	0	4	@1	1	1	0	0	0
4	3	T03K	1	0	4	@2	1	1	0	0	0
5	4	T04K	1	0	4	@3	1	1	0	0	0
6	5	T05K	1	0	4	@4	1	1	0	0	0

#### e. Import tag

Tag Operation	Options	Filter	Import/E
Add Delete Add Menu	Pair Command Table	Exact match	Import
Add Delete Add Many	Cache Setting	Q	Export

J. Return back to the dialog [Tag Setting]. After pressing [Import], a dialog will appear. If you press [OK], the dialog for choosing the files to import will appear. Please select the tag text file to replace the original tag setting; if you press [Cancel], then the action of importing tag files will be discard.



K. Select the text file (\*.txt) to import and press [Open].

✓ 匯入檔案	-	NUMB RETURNS							x
○○ □ ↓ 工作相關 ▶ 手	₩ •		_		<b>▼ 4</b> 9	・授尋手冊			٩
組合管理 ▼ 新増資料夾							•== •		0
☆ 我的最愛	<b>^</b>	名稱	修改日期	類型		大小			
🍌 Dropbox		🐌 Templates	2014/4/29 上午 1	檔案資料夾					
■ 桌面		tags.txt	2014/4/29 下午 0	文字文件		1 KB			
🗼 下載									
🗓 最近的位置	=								
➡ 推跳框									
⊇ 文件									
〕 音樂									
🛃 視訊									
≧ 圖片									
■ 电脑									
▲ 木欅磁碟 (D·)	-								
造中 ( 6 ) 提安 夕 孫 / N		h.4				立字塔 はちお			
個衆省傳(N	. tags					大丁間 (".txt)			
					K	開啟舊檔(O)	▼	取消	
[L					_				

L. You can see in the tag settings that tag names are replaced by the imported text file.

Та	igs System I	nformation Tags S	System Control	Tags Recipe	Tags	
	Tag Name	Connector	Туре	Address	Comment	
1	ABC001	InternalMemory	UINT(16)	@0		
2	T02K	InternalMemory	UINT(16)	@1		
3	тозк	InternalMemory	UINT(16)	@2		
4	T04K	InternalMemory	UINT(16)	@3		=

### 3.3 System Information Tags

Press [System Information Tag], then you can see the list of system information tags. System information tags are mainly for the information related to system status of HMI, including [USB Memory Free Size], [Time], [Date], etc.

System information tag can also write HMI information to tags through [Connect to Tag] for PLC control application.



The example below used [Tags] to connect [System Information Tag] and show USB memory free size of the USB disk connected to HMI.

a.  $[Tags] \rightarrow [Add]$ , add a tag with the name defined as [USB Memory Free Size] and specify its corresponding address [@0].

a	Та	Tags System Information Tags		ags System Contr	gs System Control Tags Red		
			Tag Name	Connector	Туре	Address	Comment
	4	USB	Memory Free Size	InternalMemory	UINT(16)	@0	

b. In [System Information Tag], select [USB Memory Free Size] to import the name [USB Memory Free Size] connecting to the tag.

		b							
	Tags System Information Tags System Control Tags Recipe Tags								
System tag periodic interl Reading periodic interval: Normal									
	Id Name Description Connect to Tag								
	10	20091 🖞 USB Memory Free Size USB memory fr		USB memory free size. Unit:Meg	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Memory Free Size	Э		

c. Drag a [Numerical Widget] from [Widgets Library] onto the screen.
 At the same time, specify the tag for the numerical widget as [USB Memory Free Size].

	Common Setting Pro	oject Transmission	Numerical Widget Format	Behavior					
C	Name:         kNumInputDisplay_96           Tag:         Image: Provide the state of the state		Max. 100 Min. 0 Base System Dec	Dynamic Range     out of range color	Keyboard : Default * Color : *	Total digits 3 Decimal places 0 Fill Leading Zero(s)	Scale: 1 Offset: 0 ‡ Alignment: Right *	Dynamic Scale	Glass Effect 3D Effect Hide Input
	Basic	Simulat	V V	'alue Range	Keyboard	Display	Scaling/Alignn	nent	Effects
	Screen Manager	🗗 × 😡 Recipe	Security setting	🕼 Display language	Trigger 🛛 😡 Macro EXan	npie II 🕺 😡 Macro EX	(ampie iii 🛛 🕑 Screen*	Widgets Li	brary
	HOME							<ul> <li>Filter</li> </ul>	
	▷ FX3U							Þ	Button
	SYSTEM TAG							D Nha	Indicator
				$\mathbf{X}$				ND-1	nencal/text wi
	80	-						ND-2	
				N.,	789			NI-1	
								NI-2	
	No. (1998) (19			-				TD-1	
	System information*							= TD-2	
								II-1	

- d. After the project is being saved, compile and download it to HMI for verification.
- (1) When the USB disk is not connected to HMI, [USB Memory Free Size] will be shown as 0.
- (2) After the USB disk is being connected to HMI, [USB Memory Free Size] will then show USB memory free size.

Exercise: Add new functions related to reading system time/date/week, current CPU usage and current RAM left onto the screen and download to HMI and verify.

USB Memory Free Size	789
Time	abcdefgh
Date	abcdefghij
Week Dey	789
Current Cpu Usage	789
Current RAM left	789
	HOME
	2018/09/04 13:49

## 3.4 System Control Tags

System control tags are mainly used for controlling the information related to the system status of HMI. Press [System Control Tag] to see the list of system control tags, including [Set Current Language ID], [Change Screens], [Backlight], etc. System control tag can also write information from external device (e.g. PLC) to HMI through [Connect to Tag] to control the information related to the system status of HMI.

Та	g Oper Add	Delete Add Many.	Options     Filter       Pair Command Table     Exact match       Cache Setting     Q	Import/E Expo	Expo ort
ag	s Sy	stem Information Tags Sy	stem Control Tags		
	ld	Name	Description	Connect to Tag	
1	20011	Change Screens	Change current screen ID and screen	Screen_ID	۵
2	20022	28 Set year	Set current year (ie: 2011)	Set_Year	Θ
3	20023	28 Set month	Set current month (ie: Feb Jun) Range:112	Set_Month	ω
4	20024	28 Set day	Set current day (ie: 21th) Range: 131	Set_Day	Θ
5	20025	() Set hour	Set current hour (ie: 11) Range:023	Set_Hour	Θ
3	20026	Set minute	Set current minute (ie: 55min) Range:059	Set_Minute	Θ
7	20027	Set second	Set current second (ie: 05) Range:059	Input Tag	
8	20060	a User Command	Custom user command	Input Tag	
9	20093	Set Current Language ID	You can use this Tag to switch languages and set the current language.	Language_ID	ω
10	20095	Backlight	Set brightness level	Backlight	ω
11	20099	🕸 Buzz On/Off Bit	Enable or Disable Buzzer	Input Tag	

The following example uses [Tags] to connect to [System Control Tag] to switch the current language shown on HMI.

a. [Tags]→[Add], add a tag with the name defined as [Switch Language ID] and its corresponding address [@1]. Next, connect the name [Set Current Language ID] in [System Control Tags] to the tag [Switch Language ID].

Tag	s Sy	ystem Information Tags	a Sy:	stem Control Tags	Recipe Tags		
	ld	Name			Description	Connect to Tag	
9	20093	🖁 Set Current Langua	ge ID	You can use this Ta	ag to switch languages and set the current language.	Language_ID	Θ

- b. Drag a [Numerical Widget] from [Widgets Library] onto the screen.
   Connect the numerical widget to Switch language ID.
- c. Then drag a 【Static Text】. The system has three default languages, namely, 【0 : English】, 【1:繁體中文】, 【2:简体中文】. You can enter the three kinds of languages on the static text respectively in order as

shown in the figure below. (The setting method for multi-language can be referred to the chapter [18. Multi-Language]).



After saving the project, compile and download and then run and verify.
 When the value of [Switch language ID] is 0, the static text will display as English.

When the value of [Switch language ID] is 1, the static text will display as Chinese Traditional.

When the value of [Switch language ID] is 2, the static text will display as Chinese Simplified.

Exercise: Add the new functions related to setting brightness level, current time, change current screen, etc. onto the screen and download to HMI and verify.



## 3.5 Internal System Tags

Beside through [System Information Tags] or [System Control Tags] to connect to [Tags], we also provide internal system tags, widgets that can be directly connected to internal system tags such as system information tags or system control tags.

The following information shows how to connect a [Numerical/Text Widget] directly to [System Information Tags] for displaying current date of HMI.

- (1) Drag a [Numerical/Text Widget] onto the screen.
- (2) Connect the corresponding [System Information Tags] to the related setting.
  - a. Under the tab 【Text Widget ]→ [Basic ]→ [Tag], press the icon button for add system tag [
  - b. Scroll down the bar and select the system tag [Date].
  - c. Press [OK].



d. You can see that the tag of the text widget becomes [S>Full\_date].
 [S>] represents System Tag.



(3) After the project is being saved, compile, download and then run for verification. You can see that the content of the system tag are transmitted to the text widget for display so that the date can be seen on the screen as in the figure below.

-		8
	2014/12/25	
	Display current date	
	2014/12/25 13/22	



# **iFACE** Designer

## BUTTON AND INDICATOR

Version 2.00

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## 4. Button

Buttons and indicators are the most commonly applied basic widgets on HMI. Buttons replaced actual switches as an operating widget for triggering the controller; while indicators can display the state of the connection points of the controller.

## 4.1 Button



- **A.** Type: set the action for the button. It can be divided into:
  - [Toggle]: when being pressed once, then it becomes ON; while being pressed again, then it becomes OFF.
  - [Set ON Button] : after being pressed, it holds as ON.
  - [Set OFF Button] : after being pressed, it holds as OFF.
  - [Momentary ON Button]: when being pressed and held, it becomes ON; while being released, it becomes OFF.
  - [Momentary OFF Button]: when being pressed and held, it becomes OFF; while being released, it becomes ON.
  - [Sequential]: After being pressed, it will transit a series of waves continuously.
- **B.** State: you can change to different state of displaying the icons and text.
- **C.** Icon: you can set the icon of the button based on its state.

Exercise :

a. In **[**Tags**]**, add a tag with the name defined as **[**Button test**]** and specify its corresponding address **[**@31.0**]**.

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Ta	ags System Inform	nation Tags Syste	m Control Tags	Recipe Tags	
	Tag Name	Connector	Туре	Address	Comment
19	Multi_state_Button	InternalMemory	UINT(16)	@32	

b. Drag five [Button] widgets and one [Indicator] widget from [Widgets Library] onto the screen. All of them are connected to the tag [Button test] and each button is defined as [Toggle], [Set ON Button], [Set OFF Button], [Momentary ON Button], [Momentary OFF Button], respectively. After completed, save, compile and download the project and then run it.



c. After the project is being saved and compiled, observe the actions of the indicators corresponding to the five different types of buttons.

Toggle Set ON Button Set OFF Button Button B	entary OFF Button
	Next

## 4.2 Indicator

	Common	Setting	Project Trai	nsmission	Light Indicator	Format	Behavior		
Name: Tag: Type :	lamp_81	Input Tag or	8	Simulate	Edit 2		0	Copy to All	State 1 Icon
	В	asic		Simulate	State/M	essage	Stat	е	Icon

- D. State/Message: Select [Edit] to increase state value. Each indicator can support up to 256 states. Changing to different states will display different icons and text.
- E. Icon: you can set the icon of the indicator based on its state.

### 4.3 Multi-state Button

[Multi-state button] is a kind of button and is very similar to a knob in daily life. However, the difference between normal buttons and multi-state buttons is that multi-state buttons usually have more than one state. When you pressed the multi-state button every time, its state value will be incremented forward or backward by 1.

$\underline{\bullet}$	Common	Setting	Project Transm	ission Mu	lti-state Button	Format	Behavior			
Name: Tag: Type:	kMultiStateBur	tton_2 nput Tag	R v	Simulate	Edit Forw	f States: 4 ge states: vard Circular		0 1 2 3	Copy to All	State 0
		Basic		Simulate	s	tate/Messag	e	Stat	e	Icon

[Change States] : after a multi-state button is being pressed, it will change its state. There are three different ways of state change that you can choose from:

- A. [Forward Circular] : from state  $0 \rightarrow$  state  $1 \rightarrow$  state  $2 \rightarrow$  state  $3 \rightarrow$  state  $0 \rightarrow ...$  runs in forward circulation. i.e.  $0 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 0 \rightarrow 1 \rightarrow 2 \rightarrow 3 ...$
- **B.** [Backward Circular] : from state  $0 \rightarrow$  state  $3 \rightarrow$  state  $2 \rightarrow$  state  $1 \rightarrow$  state  $0 \rightarrow$ ...runs in backward circulation. i.e.  $0 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 0 \rightarrow 3 \rightarrow 2 \rightarrow 1 ...$
- **C.** [Forward & Reverse] : from state  $0 \rightarrow$  state  $1 \rightarrow$  state  $2 \rightarrow$  state  $3 \rightarrow$  state  $2 \rightarrow$  state  $1 \rightarrow$  state  $0 \rightarrow$ ...runs back-and-forth like the swing of a pendulum. i.e.

$$0 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 0 \rightarrow 1 \dots$$

Exercise:

a. In [Tags], add a tag with the name defined as [Multi-state test] and specify its corresponding address [@32].

Та	gs System Inform	nation Tags Syster	m Control Tags	Recipe Tags	
	Tag Name	Connector	Туре	Address	Comment
19	Multi_state_Button	InternalMemory	UINT(16)	@32	

- b. Drag 3 [Multi-state Button] widgets and one [Indicator] widget from [Widgets Library] onto the screen. All of them are connected to the tag [Multi-state test].
- c. Each multistate button defines a different way of [Change States]. After completed, save, compile and download the project and then run it.
- d. Edit the state of the indicator and the multi-state buttons:

[No. of States]: 8 and [Icon]: edit and set the state value 0-7 corresponding to the icons.



This exercise is based on the following figure, observe the state change effect of the three multi-state buttons and the corresponding reaction of the indicator.



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# **iFACE** Designer

## VALUE RELATED WIDGETS

Version 2.00

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## 5. Value Related Widgets

When HMI is being connected to devices, not only the traditional numerical widgets, but also the widgets such as meters, bars, sliders can be used to show state of the data when reading and writing data.

### 5.1 Numerical Widget



- A. Type: can be set as one of the two types, [Numeric Input] / [Numeric Display]
- B. [Max./Min.]: its value can be set within the value range between [Max.] and [Min.]. The available value range will be based on its type and base system.
- C. [Base System]: the base system of the value can be set as [Dec], [Hex], [Oct] or [Bcd].
- Cale : the state value of the tag undergoes multiplication (set as integer) or division (set as decimal) operation by the value of [Scale].
- E. [Offset] : Widgets undergoes addition (set as positive numbers) or subtraction (set as negative numbers) operation by the value of [Offset].

The calculation formula is: actual displayed value = value of the tag  $\ast$  (Scale) + (Offset).

Exercise :

a. In [Tags], add a tag with the name defined as [Value test] and specify its corresponding address [@33].

Та	gs System l	nformation Tags S	ystem Control 1	lags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
20	Numeric_Test	InternalMemory	UINT(16)	@33	

- b. Drag a [Numerical Input] widget and two [Numerical Display] widgets from [Widgets Library] onto the screen. All of them are connected to the tag [Value test].
- c. Edit the property of the first [Numerical Display] widget: set scale as 2 and offset as 5 in scaling/alignment.
- d. Edit the property of the second [Numerical Display] widget: set scale as 0.2 and offset as -1 in scaling/alignment.



 $\times$  Scale is 2 and offset is 5. When the state value of the tag is 25, the displayed value will become 2\*25+5=55.

% Scale is 0.2 and offset is -1. When the state value of the tag is 35, the displayed value will become 0.2\*25-1=4.

#### 5.2 Meter



- F. [Angle]: [Sweep] can be set between 0 degrees to 360 degrees. (0 degree=no display, 360 degrees=full circle), [Start] is for setting the angle of the meter when starting at 0 degree and its available setting range is 0~359.
- **G.** [High/Low] : set the parameters related to the segmented range of the meter.

The meter can support multi-segmentation for displaying different value range. The display method can be chosen among [Gradient] or [Segment] or None. The range and color of the segments can also be defined respectively.

No. of Hi-L can be set up to 8. After pressing [Setting], a dialog will be invoked for defining the range and color of each segment.



**H.** [Style] : set the property for the appearance of the meter. You can set different kinds of meter onto the four quadrant, including [Full Circle],

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[Semi-Circle (Upward)], [Semi-Circle (Downward)], [Square], [Rectangle (Upward)], [Rectangle (Downward)], etc.

I. [Adjustment] : set the property for the components of the meter, including [Knob], [Unit], [Label], [Gradient], etc. You can adjust them to create a gauge with a unique style.



Exercise :

a. In [Tags], add a tag with the name defined as [Meter test] and specify its corresponding address [@34].

ſ	Та	gs System I	nformation Tags S	System Control 1	fags Recipe	Tags
		Tag Name	Connector	Туре	Address	Comment
	22	Meter_Test	InternalMemory	INT(16)	@35	

- b. Drag a [Numerical Input] widget and two [Meter] widgets from [Widgets Library] onto the screen. All of them are connected to the tag [Meter test].
- c. Practice the modification of [Style], [Value Range], [High/Low], etc. of the meter.
- d. Test whether you can design a gauge with an effect same as the figure below and verify.





# **iFACE** Designer

## ACTION BUTTON

Version 2.00

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## 6. Action Button

Action button is similar to [Button], but tag address is not required to set. Its main application is to specifically run all kinds of settings in [Action].

#### 6.1 Action Button



Since the function tab and format tab of the action button is very similar to button, so the detailed description related to these settings can be referred to the section [Button] in this manual and will not be given here.

A. [Behavior] can set the related properties of function behavior. Press [Edit] and open action management dialog.



- **B.** [Add Action]: You can add at most 3 actions based on the property of the action. But some actions can only be used independently.
- C. For example, add the action [Back to BIOS], etc. The hint message for

confirmation of independent action will appear.



Exercise 1:

a. In [Tags], add a tag with the name defined as [Action\_button\_test] and specify its corresponding address [@34].

ĺ	Та	gs System Inform	ation Tags Systen	n Control Tags	Recipe Tags	
		Tag Name	Connector	Туре	Address	Comment
	21	Action_Button_Test	InternalMemory	UINT(16)	@34	

- b. Drag a [Action Button] widget from [Widgets Library] onto the screen.
- c. [Action Button]→[Behavior]→[Edit]. After pressing [Add Action], select the action group [PLC Service] → [Add Value] in action list.

Action Group Security Service Communication Service [PLC Service	<b></b>	Actions Add Value Set as Constant Value Set a Numeric Value	
Help Add value to the specific tag			

d. In [Action Parameters], connect the tag to the tag [Action Button test]; set the setting for add value as [+5] and the setting for value limit as [100].

Action Management		<b>२ ×</b>			
Actions	Action Parameters				
↑ Add Value	Parameter	Setting			
1	1 Tag	Action_Button_Test			
	2 Add Value	+5			
	3 Value Limit	100			

- e. Add a new action button according to the procedure described in (2) (4). In [Action Parameters], connect the tag to the tag [Action button test]; set the setting for add value as [-5] and the setting for value limit as [0].
- f. Drag a [Numerical Display] widget from [Widgets Library] onto the screen and connect to the tag [Action button test].

Simulation & Verification:

It can be seen in the following figure. Press the action button [Add value +5] once and then the displayed value will add 5. If you continued to press the button, the value will be increasing up to 100 and then it will stop adding up; on the other hand, by pressing the action button [Subtract value -5] once and then the value will subtract 5. If you continued to press the button, the value will be decreasing to 0 and then it will stop subtracting.



Exercise 2:

Continue the previous exercise and drag a [Action Button] widget from [Widgets Library] and then edit the property of [Behavior]. Specify the actions such as [Change Screen], [Back to BIOS], [Set Backlight], etc. respectively and then test and verify.





# **iFACE** Designer

## LIST

Version 2.00

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## 7.List

List is a widget for displaying options by listing to users for making a choice.

## 7.1 List



- A. Lists can be divided into three types: [List], [Drop-down Menu (Upward)],
   [Drop-down Menu].
  - [List]: use the scroll bar to display the content of the items and then select an item.
  - [Drop-down Menu (Upward)]: select the symbol [ ] to display the drop-down menu and then use the scroll bar to display the content of the items and then select an item.
  - [Drop-down Menu]: Select the symbol [ V] to display the drop-down menu and then use the scroll bar to display the content of the items and then select an item.
- **B. [**Scroll Bar**]** : set the width of the scroll bar in the range between 10 to 50. For example, change the width of the scroll bar from 10 to 20.



C. [Row Height] : set the spacing between items on the list. Define row height

for each items on the list in the range between 10 to 100. For example, change row height from 30 to 60.



Exercise:

a. In [Tags], add a new tag with the name defined as [List test] and specify its corresponding address [@35].

Та	gs System	nformation Tags S	System Control	lags Recipe	Recipe Tags		
	Tag Name	Connector	Туре	Address	Comment		
23	List_Test	InternalMemory	UINT(16)	@36			

- b. Drag a [Numerical Input] widget and a [List] widget, a [Drop-down Menu (Upward)] widget, a [Drop-down Menu] widget from [Widgets Library] onto the screen. All of them are connected to the tag [List test].
- c. Edit [List] widget to make a list with 10 states.

	🕑 Edit States			×
	Edit States		State Mappin	g
No of items	Language:	English Delete	Numeric	
	State	Content	Value	
List	0	State 0	0 ‡	
Value/Item Name	1	State 1	1 ‡	
	2	State 2	2 ‡	
	3	State 3	3 ‡	
	4	State 4	4 ‡	
	5	State 5	5 ‡	•
			Ok	Cancel

Simulation & Verification:

Perform a test to select the items on the list and the displayed value will also be changed based on the state value.



%List will transmit the corresponding value based on the item being selected and also display the corresponding item based on the value read.



# **iFACE** Designer

## CONTAINER

Version 1.03

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## 8. Container

This chapter mainly introduces three kinds of container widgets provided by iFACE Designer. Users can gradually learn about the usage of related setting and its application through simple operation.

## 8.1 What are Containers?

Containers can collect and arrange one or more widgets as a group by its properties based on their joint type or purpose to accomplish the effect of making the designers design flexibly and the users operate conveniently.

When containers are being moved, the widgets placed inside the containers will also be moved along with the containers. So, no re-adjustments are required.

iFACE Designer has provided three kinds of containers:

- A. Tab Folder
- **B.** Group Box
- C. Panel

#### A. Tab Folder

Tab folders are for categorical management of screen data and you can switch rapidly between different tabs. At the same time, the performance of each screen can be enlarged through the function of tab folder, which is similar to rebuilding a bungalow to a high-rise tower.

Operating procedure:



a. First, we will start by dragging a tab folder from [Widgets Library/Container].

- b. The default tab folder has three tabs. Color and name of the tab name can be set respectively and tab placement can also be set.
- c. Select the tab folder on the screen and then the tab 【Tab Folder】 will appear.



- **A. [**Tag**]** : can be set to control the page of the tab folder to display. For example, if the tag is set as 0, then the tab folder will show its first page.
- B. Current Tab Name: set the name of the current tab. For example, we can change the name of the first tab from [Page] to [Motor]. Next, we can change the name of the second tab to [Storage Tank] and the third tab to [Control Switch] respectively.

Common Setting Project Trai	nsmission Tab Folder				
Name: ktab_1 Tag: ⊢∬ ✿ ► Input Tag Type : Tab Folder	Current Tab Name: Control switch Tab Placement: Top	Quick Style + + + + + + + + + + + + + + + + + + +	Arial $\checkmark$ $A \sim$ 12 $\checkmark$ $A^*$ $abe$ <b>B</b> $I$ $\underline{U}$ $Q$	Width:         370 \$           Height:         280 \$	Dynamic
Basic	Tab 🔪	Drawing	Font	Widget Size	Dynamic
Screen Manager & X 😡 Screen*					
● 默认	Motor	Storage tank Control switch			

C. Tab Placement: set the placement of the tab such as [Top], [Bottom],
 [Left], [Right].

#### Container

Motor Storage tank Control switch							
TOP	Bottom						
	Motor Storage tank Control switch						
Motor	Motor						
Left	Right g						
Stor							
	8						

D. The color of the current tag can be set in [Drawing/Background].

Next, we can put the widgets onto the tab folder respectively.

- a. Select the tab [Motor] for the display and control of the rotation speed of the motor.
- b. In this tab, we will use the widgets such as [Static Text], [Numerical Widget], [Indicator] and [Meter], [Button].



- c. Select the tab [Storage Tank] for the liquid level of the storage tank.
- d. In this tab, we will use the widgets such as [Static Text] and [Bar].



- e. Select the tab [Control Switch] for some control buttons.
- f. In this tab, we will use the widgets such as [Static Text], [Flow Control],
   [Button].



After completed, we can select each tab to view and make sure that everything is correct, and then the setting is finished.

#### B. Group Box

Group box can combine some control widgets by a frame with text. These control widgets are often belonged to the same type or collected to accomplish a certain purpose together.

Operating procedure:

a. First, we will drag a group box from [Widgets Library/Container].

### Container



- b. Next, you can set the **[**Title**]** and background color of the group box.
- c. If we wish to make a board to record daily production, we can set the title as
   [Production counter]]. The color is set in background. Black is set in this example.

$\mathbf{v}$	Common	Setting	Project Trar	nsmission	Group Bo	4							
Name: Type:	kgroupbox_1 Group Box			GroupBo	×	Quick Style +	Backgroun	d Border	Frame Style +	Arial 12 · B 2	- A - A A abe T ⊻ ⊘	Width: 350 ‡ Height: 306 ‡	Dynamic
	Ba	sic		Tit	e		Drawi	ng			Font	Widget Size	Dynamic

d. Next, add all required widgets into the group box. In this example, we will use the widgets such as [Static Text], [Message Display], [Numeric Widget], [Action Button], [Bar] (as in the following figure). So, a production counting board that includes instruction is completed.



#### C. Panel

Panel is a special frame that combines some control widgets and applies special effects such as all kinds of colors or materials to make a beautiful and practical control panel.

For example, the control panel for temperature controller and frequency converter, name plate on the widget.

Operating procedure:

a. First, we drag a panel from [Widgets Library/Container].



b. Next, we can set the color of the panel. Assume that we want to make a panel for simulated temperature controller, and then the background of the panel can first be set as light gray, which can be combined with the gradient effect to produce special feelings of plastic panel.


c. Next, we can add the required widgets onto the panel in order.
In this example, we will use the widgets such as [Static Text], [Numerical Widget], [Indicator], [Flow Control], [Button].



d. Therefore, we can use **[**Panel **]** at ease and a beautiful panel for temperature controller is completed.



### MESSAGE DISPLAY

Version 2.00

### 9. Message Display

The specified message is displayed based on the set state value of the tag. We can display the corresponding contents based on its state. Also, we can display in the form of marquee.

#### 9.1 Message Display



- A. Widgets for message display can be divided into three types: [Static Message], [Marquee Message], [Alarm Message].
  - 【Static Message】: read the corresponding texts and display them on the widget by changing the state value of the tag. The displayed text is static, which is similar to static text. The difference between them is that static message can display texts of multiple states.
  - [Marquee Message] : read the corresponding texts and display them on the widget by changing the state value of the tag. The displayed text will move in the form of marquee.
  - 【Alarm Message】: When an alarm occurred, it will read the texts of the alarm message and display them by moving in the form of marquee. The settings related to alarms can be referred to the chapter 【Alarm】 in this manual.
- **B.** [Marquee Movement] : set the display properties related to marquee message. You can set its [Direction] and [Speed].
  - [Direction]: The relative movement direction of marquee can be set based on [Text Orientation] of message display. If text orientation is set as [Vertical], then the movement direction can be set as [Upward] or [Downward]; if the text orientation is set as [Horizontal], then the movement direction can be set as [Leftward] or [Rightward].

[Speed]: the movement speed of every word in the marquee message. You can set the speed as [0.5], [1], [1.5] or [2]. The smaller the value is, the faster the movement speed is.

Remark: You can set movement direction and speed of marquee for [Marquee Message] and [Alarm Message]. But marquee movement does not work for [Static Message].

Exercise:

a. In [Tags], add a new tag with the name defined as [Message display test] and specify its corresponding address [@36].

Та	gs System Information Tags		System Control	lags Recipe	Recipe Tags		
	Tag Name	Connector	Туре	Address	Comment		
24	Message	InternalMemory	UINT(16)	@37			

- b. Drag a [Numerical Input] widget and a [Static Message] (Horizontal) widget, a [Marquee Message] (Horizontal) widget from [Widgets Library] onto the screen. All of them are connected to the tag [Message display test].
- c. Edit [Static Message] (Horizontal) widget and [Marquee Message] (Horizontal) widget to make both of them having 10 states each.



 d. Set the properties of the [Static Message] (Horizontal) widget. You can edit movement direction and speed. For example, change [Direction] to leftward and [Speed] to 0.5.

Direction:	Rightward	*
Speed:	0.5	Ŧ
Marque	e Movement	_

Simulation & Verification:

Modify the value to change the state of the message display. Static message is displayed with state 6 and the marquee message is moved to the left every 0.5 second.





## STATIC PICTURE AND ANIMATED GIF

Version 2.00

### 10. Static Picture and Animated Gif

Static picture and animated gif are mainly for directly displaying the pictures in your computer on the screen without the control by tag. A common application is for displaying company LOGO or status of the machine and also making them look nicer on HMI screen.

#### 10.1 Static Picture

${\color{black}{\bigcirc}}$	Common Se	etting Project Trai	nsmission	Static Picture Behavio	r	
Name: Type:	KStaticPicture_4 Static Picture		Browse	Original Size     Scale to fit     Scale w/ aspect ratio	Width:         256 \$           Height:         256 \$	Carousel
	Basic		Source	Auto-Resize	Widget Size	Carousel

- A. [Static Picture] can be applied by choosing from external pictures. Source of the static pictures can support up to eight kinds of image file formats such as png, jpg, bmp, gif, jpe, xbm, xpm, svg.
- B. [Auto-Resize] can change the ratio of the picture to be displayed on the screen. You can choose among the three options: [Original Size], [Scale to fit], [Scale w/aspect ratio] and the description of them are as follows.

#### 10.1.1 Original Size

The original picture taken from the source has the size of 256 x 256. After the picture is being imported, if [Original Size] is being selected, then you need to set the width and height of the [Static Picture] as  $256 \times 256$  pixels in order to display the complete original picture. It can be seen in the figure below:







#### 10.1.2 Scale to Fit

If [Scale to fit] is selected, then the size of [Static Picture] will be changed to 200 x 100 automatically. The ratio for displaying the original picture with the resolution of 256x256 will be based on the set widget size automatically. Since it will try to fill the picture in the widget, it is more likely to have obvious distortion. It can be seen in the figure below:



#### 10.1.3 Scale w/aspect ratio

If [Scale w/aspect ratio] is selected, then the size of [Static Picture] will be kept as 200 x 100 automatically. The ratio for displaying the original picture with the resolution of 256x256 will be adjusted in accordance with the ratio of widget size. It can be seen in the figure below:



Exercise:

Please add static pictures to practice the automatic adjustments based on the screen below.



#### 10.2 Animated Gif

$\mathbf{v}$	Common	Setting	Project Transi	mission A	Animation (GIF)	Behavior		
Name:	gifDisplay_3			Access Grou	ıp:		 Finabled by	
Туре:	Animated Gif	ic		Access Deni	ed: None	•	when      ON      OFF  Input Control	Dynamic
	Dds	iic			Authorization			Dynamic

When you add an animated gif on the screen, it will start its dynamic behavior. If you want to control the activation and stop the behavior of the animated gif, you can do so

by input tag under the tab [Behavior]  $\rightarrow$  [Input Control]  $\rightarrow$  [Enabled by] and set when to activate.

Exercise:

a. In [Tags], add a new tag with the name defined as [Animated gif test] and specify its corresponding address [@38.0].

ĺ	Та	Tags System Information Tags		em Control Tags	Recipe Tag	S
		Tag Name	Connector	Туре	Address	Comment
	25	GIF_Test	InternalMemory	Bit	@38.0	

b. Drag a 【Button】 widget and an 【Animated Gif】 widget from 【Widgets Library】 onto the screen. Connect 【Button】 to the tag address and set the tag 【Animated gif test】 in 【Enabled by】 under the tab 【Behavior】 → 【Input Control】.

Simulation & Verification:

The animation of the fan can be seen in the following figure. The activation or stop of the behavior is controlled by the tag [Animated gif test]. If the state of the tag is ON (i.e. [Animated gif test] = 1), the animation will show a rotating fan; on the other hand, if the state of the tag OFF (i.e. [Animated gif test] = 0), then animation will stop and show a static fan.





## X-Y CHART

Version 2.00

### 11. X-Y Chart

[Line Chart] and [X-Y Chart] are curves drawn by sampling from data series for convenient analysis.

#### 11.1 X-Y Chart



- A. These charts can be divided into two types: [Line Chart] and [X-Y Chart].
- **B.** [Edit] will invoke curve setting dialog.

Edit dat	a series			Data points a		
angua	ge:	English	-	Points collected:	[	Fixed
	Add	Delete		Total points:	[	20
Data —	-0					
	Series Name	Starting Address	N	lext Address Increment	Color	Visible
1 🗖	CURVE 1	Line Data0	3 1	<b>▲</b> ∵		Input Tag

a. [Points collected: Fixed] : number of points displayed on the curve is based on total points. For example, if total points is set as 20, then the number of sampling points for each curve will be 20.

[Points collected: Variable]: number of points displayed on the curve is based on the state value of the tag. For example, if the connected tag is TAG1, then the number of sampling points of each curve will be 30 when the state value of TAG1 is 30.

- b. [Data] : set the data of each curve.
  - i. [Series Name] : set the name of the curve. The name supports multi-language.
  - ii. [Starting Address]: input the corresponding tag as the starting address for the curve sampling.
  - iii. [Next Address Increment] : set the increment number for the next sampling point.
- **C.** [Sampling Tag] : Input a tag to trigger curve drawing function. When the state value of the tag=1 (ON), it will draw the curve; when the state value of the tag=0(OFF), it will clear the drawn curve.
- **D.** [No. Of Series] : set the number of curves to display.
- E. [Drawing Style]: There are 5 kinds of styles provided for users to choose and use, including [Dots], [Lines], [Curves], [Line Area], [Curve Area].

Exercise for X-Y Charts:

- a. In [Tags], add 7 new tags.
- b. Their names are defined as 【Curve trigger control】 and its corresponding address 【@39.0】; 【Data series 0-5】 and their corresponding addresses 【@40】 【@45】, respectively.

Та	gs System Information Tags			System Control Tags Recipe Tags						
	Ta	ig Name	Connector		Туре	Address	Comment			
26	Lin S	Samplin	InternalMemory		Bit	@39.0				
27	Line	Data0	InternalMemory		UINT(16)	@40				
28	Line	Data1	InternalMemory		UINT(16)	@41				
29	Line	Data2	InternalMemory		UINT(16)	@42				
30	Line	Data3	InternalMemory		UINT(16)	@43				
31	Line	Data4	InternalMemory		UINT(16)	@44				
32	Line	Data5	InternalMemory		UINT(16)	@45				

c. Drag a [Line Chart] widget from [Widgets Library] and edit data. Points collected is as [Fixed], total points is set as [5] and starting address is set as [Data series 0] (as seen in the figure below).

Edit dat	a series		Data points		
Language:		English	Points collected:		Fixed
Add		Delete	Total points:		5 :
Data —					
	Series Name	Starting Address	Next Address Increment	Color	Visible

d. Input [Curve trigger control] in [Sampling Tag].



e. Drag a [Button] widget and 6 [Numerical Input] widgets from [Widgets Library] onto the screen. Connect [Button] to the tag [Curve trigger control] and connect [Numerical Input] widgets to the tags Data series 0-5.

Simulation & Verification:

It will be the same as shown in the figure below. After finishing editing and entering the value, click the button on the screen. Line chart function will draw a line chart based on the 6 data series.



Exercise for X-Y Charts:

- a. Continuing the previous exercise, use the tag addresses for 【Curve trigger control】 and 【Data series 0-5】.
- b. Drag a [Line Chart] widget from [Widgets Library] and edit data. Points collected is set as [Fixed], total points is set as [3] and starting address

is set as [Data series 0] (as seen in the figure below).

Curve Set	a series		Data points		B
Language:		English	Points collected:	[	Fixed
Add		Delete	Total points:		3 ‡
Data					
	Series Name	Starting Address	Next Address Increment	Color	Visible
1	Curve 1	Line Data0 🛛 🔊	1		Input Tag

c. Input [Curve trigger control] in [Sampling Tag].

X-Y Chart	Format I	Behavior		
Edit	Sampling Tag: No. of Series:	npling Tag + O	Part	Drawing Style:
	Data Series	and Trigger	Display -	hart Option

d. Drag a [Button] widget and 6 [Numerical Input] widgets from [Widgets Library] onto the screen. Connect [Button] to the tag [Curve trigger control] and connect [Numerical Input] widgets to the tags [Data series 0-5].

Simulation & Verification:

It can be seen in the figure below. After finishing editing and entering the value, click the button on the screen. Line chart function will draw a line chart based on the 6 data series.





## DATA LOGGING

Version 2.00

### 12. Data Logging

Data logger is mainly for saving data in the default buffer of HMI temporarily. If the buffer was not full yet, users can browse through old data at any time in HMI; if the buffer is full or it has reached the set condition, then the system will backup the data in the buffer to USB disk or SD card.

#### 12.1 Data Logger Service

Click [Data logger Service] in the item group [General settings] under the tab [Setting].



#### 12.1.1 Data Logger Setting Dialog

Data Logger Setting Dialog     Edit data log	
A Add Delete	Data Element Sampling Backup Behavior
Log Name #Reco	Log Name: No. of records :
	Edit data element
4 <u> </u>	Add Delete
Memory Usage	Log Sizing Record size: 10 Bytes Log Size: 1000 records (10KB)
	OK Cancel

- A. Log name can be added up to 16 data logs.
- B. Every data log can independently define the fields such as [Data Element],
   [Sampling], [Backup], [Behavior].

- [Data Element] : each data log can support up to 32 tag addresses.
- [Sampling]: set sampling method and the action when the data log is full.
  - In the state of the tag is ON, perform the sampling based on the conditions below; when the state of the tag is OFF, do not perform the sampling whether the conditions below hold or not.
  - ii. [Triggered by Bit] : when the state of the tag turned ON, it will perform the sampling once. However, it is required to first set the state of the tag as OFF before triggering it once again.
  - iii. (At intervals of) : set a fixed time interval for performing the sampling.
  - iv. [Intervals according to Tag]: set the interval for performing the sampling based on the state value of the tag. The unit is in seconds.



**C.** [Backup] : set when to backup time and for what storage and files.

	G
Data Element	Sampling Backup Behavior
🔲 Backup Log	1
Automatic Ba	ackup
© Daily : 0	▼ hr: 0 ▼ min
Backup wh	en log full
Storage and	Files
Storage :	SD Card
File Name :	
	File will be labeled as: Filename + "yyyymmdd_hhmm"
	Use tag contant relpace backup file name
	Input Tag
	1 File per day

**D.** [Behavior] : empty log or backup the remaining to USB disk or SD card.



#### 12.2 Datalog Table

$\mathbf{igsim}$	Common	Setting	Project Transmission	Datalog Table	Format	Behavior			
Name: Type:	KDatalogTable Datalog Table		Simulate	Column Setup -	No. of Row: 4 ‡	Vertical: 6 ¢ Horizontal: 6 ¢	<ul> <li>Header</li> <li>Footer</li> <li>Horizontal Scroll Ba</li> </ul>	<ul> <li>Modify Column</li> <li>Previous/Next Page</li> </ul>	Select Datalogger group
	Bas	ic	Simulate	Colum	n/Row	Margin	Dis	play	Datalog setting

Time	E1	E2		Widgets Library
2018/09/06 17:33:17.849	111	111		Table
2018/09/06 17:33:17.849	222	222		Alarm_History_TBL
2018/09/06 17:33:17.849	333	333		Widget_TBL
2018/09/06 17:33:17.849	444	444		Alarm_TBL
		▶ Page	1/1	Current_Alarm_TBL

Use a table to browse through the contents of data log.

#### Exercise:

a. In [Tags], add 3 tags with their names defined as [Data log 0-2] and specify their corresponding addresses [@50] - [@52].

Та	Tags System Information Tags		System Control	lags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
37	datalog0	InternalMemory	UINT(16)	@50	
38	datalog1	InternalMemory	UINT(16)	@51	
39	datalog2	InternalMemory	UINT(16)	@52	



b. Edit data logger service

😡 Di	Data Logger Setting Dialog									
FE	Edit data log Language : English									
G		Add	Delete		Data Element		Sampling Backup	Behavior		
		Log Name	#Reco		Log Name:		Log_1			
	1	Log_1	2000		No. of records	<b>s</b> :	2000			
					Edit data eler	ne	nt			
				M	Add		Data Element Name	Tag	Data Type	Decimal places
	Delete 1 Voltage datalog0 🕲 Word 0 🗘									
						2	Electric current	datalog1 🛛 😒	Word	0
						3	Motor speed	datalog2 🛛 😣	Word	0 🗘

- i. Add a data log.
- ii. Add 3 data elements and fill in [Data log 0] [Data log 2] in the field Tag.
- c. Sampling: set at intervals of 1 second.

Data Element Sampling	Backup	Behavior	
Sampling Method			
Use Enable Bit		-	
Triggered by Bit:		*	
At intervals of:	1.0	‡ sec	
$\bigcirc$ Intervals according to Tag			(Unit:sec)

d. Drag a [Datalog Table] widget and 3 [Numerical Input] widgets from [Widgets Library] onto the screen. The 3 [Numerical Input] widgets are connected to the tags [Data log 0] - [Data log 2], respectively. Select Data logger group [Log\_1] in [Data Setting].

$\mathbf{igsim}$	Common Setting	Project Transmission	Datalog Table Format	Behavior		
Name:	KDatalogTable	Sinulata	No. of Row:	Vertical: 5 🛟	V         Header         Modify Column           V         Footer         V         Previous/Next Page	•
Type:	Datalog Table	Simulate	Setup + 10 ‡	Horizontal: 6 🛟	Horizontal Scroll Bar     Datalogger group Tag Input Tag	
	Cont	Januake		Selec	ct data logger group	

Simulation & Verification:

As shown in the figure below, [Datalog Table] reads the state values of voltage, current, motor rotation speed every second.

Time	Voltage	Electric current	Motor speed			
2018/09/06 17:49:47	36	50	100			
2018/09/06 17:49:46	36	50	100		Voltage	36
2018/09/06 17:49:45	36	50	100			
2018/09/06 17:49:44	36	50	100		Electric current	50
2018/09/06 17:49:43	36	50	100			
2018/09/06 17:49:42	36	50	100			
2018/09/06 17:49:41	24	50	100		Motor speed	100
2018/09/06 17:49:40	24	50	100			
2018/09/06 17:49:39	24	50	100			
2018/09/06 17:49:38	24	48	100			
			▶ * 頁面	1/5	5	
					_	
						HOME
					2018/09/06	17:49

#### 12.3 Trend



Use trend to browse through the contents of data log.

Exercise:

- a. Keep the settings for the data log and tag addresses here the same as in chapter 11.2's exercise.
- b. Drag a [Trend] widget and 3 [Numerical Input] widgets from [Widgets

Library ] onto the screen. The 3 [Numerical Input] widgets are connected to the tags [Data log 0-2], respectively.

c. Click [Trend] to edit trend setting.



- d. Trend Setting
- i. Select Data Log: select Log\_1.
- ii. Selected: tick box of the data log desired to display.
- iii. Color: set the color of the trend.

	Trend Setting									
F	Select Data Log									
[	Log_1						English	•		
	Selected	Data Element	Display Name	Color	Invisible?	Comment				
Ü	J	datalog0	Voltage		Input					
2	7	datalog1	Electric current		Input					
3	7	datalog2	Motor speed		Input					

Simulation & Verification:

It will be the same as shown in the following figure. **[**Trend **]** reads the data of voltage, current, motor rotation speed every second to draw the curve and display the effect by trend.





## ALARM SERVICE

Version 2.00

### 13. Alarm Service

Alarm is being arranged into the design of the application in advance for abnormal situations that may occur during production process. When the abnormal situation occurred, it will give a hint of the reference for machine maintenance or simple trouble-shooting to the operator through HMI.

#### 13.1 Alarm Service

Click on [Alarm Service] in the item group [General Settings] under the tab [Setting].



#### 13.2 Alarm Service Dialog

🔬 Alarm Service Dialog		×
Alarm Alert Icon Language English I Show Add Delete Duplicate Blink	n Alert Icon Position: 5 x : 350 ≎ y : 10 ≎	Filter  Exact match  Key Word
Import A ort Alarm Group Customi	ze B 🗆 Save History	History backup count: 4000 Read Interval: N. C.
Alarm Name Tag Source Type	Trigger Condition Condition Value G	roup Enable Auto Close Trigger Notification
-Message Description	Customized	
Preview	Perform Actions:	Open a Screen:
	ON Action OFF Action	Default/Screen -
t		Edit
		OK Cancel

- A. [Alarm Name] : the corresponding texts of the alarm message will display when an alarm occurred.
- B. [Tag] : set the parameters [Source Type], [Trigger Condition],
   [Condition Value] in order by connecting the tag to determine the condition value for the alarm to occur.

Source Type	Trigger Condition	Condition Value
Bit Type	SET = 1 Clear = 0	No need to fill in. No effect if filled in.
Register Type	<ul> <li>= (equal)</li> <li>=! (not equal)</li> <li>&gt; (greater than)</li> <li>&lt; (less than)</li> <li>&gt;= (equal to or greater than)</li> <li>&lt;= (equal to or less than)</li> </ul>	Any value. Does not support characters as condition value for determination.

**C.** [Trigger Notification] : When the trigger condition is established and the alarm has gone off, trigger notification can be given at the same time.

	Use sub screen to display the content of the alarm.				
Simple Description	For example, when trigger condition has reached, it will create a corresponding sub screen for the alarm.				
	Close				
Custom Description	<ol> <li>You can define the corresponding action when the alarm goes off/releases.</li> <li>Open the specified screen.</li> </ol>				

**D. [**Buzzer Notify**]** : when the trigger condition is established, the buzzer will sound.

Exercise for Alarm Service:

a. In [Tags], add 7 new tags with their names defined as [Alarm trigger point 0] ~ [Alarm trigger point 6] and specify their corresponding addresses [@53.0] and [@54] - [@59], respectively.

Та	gs System I	nformation Tags S	System Control	Tags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
40	Alarm0	InternalMemory	Bit	@53.0	
41	Alarm1	InternalMemory	UINT(16)	@54	
42	Alarm2	InternalMemory	UINT(16)	@55	
43	Alarm3	InternalMemory	UINT(16)	@56	
44	Alarm4	InternalMemory	UINT(16)	@57	
45	Alarm5	InternalMemory	UINT(16)	@58	
46	Alarm6	InternalMemory	UINT(16)	@59	

b. Open alarm service dialog. Add 7 new alarms and edit their alarm names, tags, source types, trigger conditions, condition values and trigger notification according to the following figure.

▲	Alarm Service Dialog											
Alarm Language English ·			glish ·	Alert Icon Show Alert Icon Position: Fixed X/Y			Filter Exa	Filter				
Add     Delete     Duplicate       Import     Export     Alarm Group.			Duplicate	Blink Customize	x : 0	listory USB	History H	ey Word	2000 Read	I Interval: Normal 🔹		
		Alarm Name	Tag	Source Type	Trigger Condition	Condition Value	Group	Enable	Auto Close	Trigger Notification		
1		Alarm0	Alarm0 🛛 😣	Bit Type 🔹	set -	1 ‡	群組 1			Simple Descripti 🔹		
2	2	Alarm1	Alarm1 🛛 🖸	Register Ty -	=	2000 ‡	群組 1 🛛 🚽			Simple Descripti 🔹		
3	3	Alarm2	Alarm2 🛛 😣	Register Ty -	!= -	100 ‡	群組 1 🚽			Simple Descripti 🔹		
4	ŀ	Alarm3	Alarm3 🛛 🛽 🕄	Register Ty -	> *	75 ‡	群組 1 🚽		<b>V</b>	Simple Descripti 🔹		
Ę	5	Alarm4	Alarm4 🛛 😣	Register Ty *	< -	40 ‡	群組 1 🚽		<b>V</b>	Simple Descripti 🔹		
e	ò	Alarm5	Alarm5 🛛 🛽	Register Ty -	>= *	5000 <sup>‡</sup>	群組 1 🚽		<b>V</b>	Simple Descripti 🔹		
7	,	Alarm6	Alarm6 🛛 🛛	Register Ty -	<= *	1000 ‡	群組 1 🚽			Simple Descripti 🔹		

\*Remark: Every trigger notification and buzzer notify for the alarm are independent settings. Use the left button of the mouse to click on the alarms required to edit, then that row will appear with background color blue so that the trigger notification can be edit.

	Alarm Name		Tag		Source Type	Trig	ger Conditior	<b>Condition Value</b>	G	iroup	Enable	Auto Close	Trigger Notification
1	Alarm0	Ala	rm0	Ο	Bit Type 🔹	set	*	1 ‡	群組	1 -	<b>V</b>	<b>V</b>	Simple Descriptior 🔹
2	Alarm1	ie V	rm1	0	Register Ty *	=	Ŧ	2000 ‡	群組	1 *			Simple Descriptior *
3	Alarm2		m2	0	Register Ty *	!=	-	100 ‡	群組	1 -			Simple Descriptior *
S	essage Descri Condition Value =	ON			Preview	Cus	stomized Perform Actions NN Action OF	F Action	Edit	C Op	een a Screen: zzer Notify		v

#### 13.3 Current Alarm Table

Current alarm table is mainly for displaying the content of current ongoing alarms inside the table. The alarm will be cleared from the table once the alarm has been released.

Common	Setting Project Tra	nsmission	Current Alarm Ta	ble Form	nat Behavior				
Name: KCurrentAlarmTable Type: Current AlarmTable		Simulate	Ate Column Setup - 5		of Row: Vertical: 6 ↓ Horizontal: 6 ↓		<ul> <li>✓ Header</li> <li>✓ Footer</li> <li>✓ Horizontal Screet</li> </ul>	Modify Column ✓ Previous/Next Page Ill Bar	Show on Static Text
В	asic	Simulate	Column/	Row	Margin			Display	Show Detail
Alarm Name	Description			Trigger Ti	me			Widgets Library	٥
Alarm 1	1 detail description Water's temperature too high		2001/9/1		2001/9/1 12:00:01		a Table		
Alarm 2				2001/9/1 1	2:00:01			Alarm_History_TBL	
Alarm 4	Level overload!!			2001/9/1 1	2:00:01	<b>•</b>	K	Widget_TBL Datalog_TBL	
					Page 1	1/1		Current_Alarm_TBL	-

Exercise for Current Alarm Table:

- a. Drag a [Button] widget, 6 [Numerical Input] widgets and a [Current Alarm Table] widget from [Widgets Library] onto the screen.
- b. Refer to the alarm service dialog from the previous section and connect
  [Button] and [Numerical Input] widgets to the tags [Alarm trigger point
  0] [Alarm trigger point 6], respectively.

Simulation & Verification:

It will be the same as shown in the following figure. When the state value of the tag satisfies the trigger condition, then 【Current Alarm Table】 will display the alarm.

Alarm Name	Description			Trigger Tim	e	
Alarm0	Condition Val	ue =ON		18-09-06 18:	37:13	
Alarm6	Condition Val	ue <= 1000		18-09-06 18:	37:50	
						-
•					● 頁面	î 1/1
	Condition Value =ON	44	Condition Value >75	44	Condition Value	<=1
530	Condition Value 2000	52	Condition Value <40			

#### 13.4 Alarm Table

Alarm table is mainly for recording the number of occurred alarms.

Common	Setting Project Tra	nsmission	Alarm Table	Format Beha	vior				
Name: KAlarmTable Type: Alarm Table		Simulate	Column Setup +	No. of Row:	Vertical: 6 Horizontal: 6	•	✓ Header       ✓ Footer       ✓ Horizontal Scroll Bar	] Modify Column ] Previous/Next Page	Show on Static Text
E	asic	Simulate	Colum	n/Row	Margin		Display		Show Detail
Alarm Nama	Description			Triages Count	State	1		Widgets Library Filter	0
Alarm Name	Alorm 1 Information			Ingger Count	Departivet			l⊿ Ta	able
	Alarm T mormation			U	Deactivat			Alarm_History	/_TBL
Alarm 2	Alarm 2 Information			2	Activated			Device Info	TBL
Alarm 3	Alarm 3 Information			1	Deactivat		1	Widget TBL	
Alarm 4	Alarm 4 Alarm 4 Information			5	Deactivat			Datalog_TBL	
								Alarm_TBL	
				•	Page 1/1	1		Current_Alarr	n_TBL

Exercise for Alarm Table:

- a. Drag a [Button] widget, 6 [Numerical Input] widgets and an [Alarm Table] from [Widgets Library] onto the screen.
- b. Refer to the alarm service dialog from previous section and connect the [Button] widget and [Numerical Input] widgets to the tags [Alarm trigger point 0] [Alarm trigger point 6], respectively.

Simulation & Verification:

It can be seen in the figure below. When the state value of the tag satisfies the trigger conditions, the [Alarm Table] will record the number of times the alarm has been triggered.

	A	larm F	requency 1	able		
Alarm Name	Descript	tion			Trigger Count	State 🔺
Alarm0	Conditio	on Value =ON		4	Deactiv	
Alarm1	Conditio	on Value 2000			0	Deactiv
Alarm2	Conditio	on Value !=100			1	Activat
Alarm3	Conditio	on Value >75			0	Deactiv
Alarm4	Conditio	on Value < 40			1	Activa 🔻
						・* 頁面 1/2
<b>O</b> c	condition Value =ON	0	Condition Value >75	0	Condition V	/alue <=10(
<b>0</b> c	Condition Value 2000	0	Condition Value <40			
<b>0</b> C	condition Value != 100	0	Condition Value >=5000			IOME
				2	018/09/06 18:3	9

#### 13.5 Alarm History Table

Used to record the state when the alarm is triggered or released.

$\mathbf{\bullet}$	Common Setting	Project Transmission	Alarm History Table Form	nat Behavior				
Name: Type:	KAlarmHistoryTable Alarm History Table Basic	Simulate	No. of Row: Column Setup + 4 + Column/Row	Vertical: 6 + Horizontal: 6 + Margin		Header Footer I Horizontal Scroll Bar Displa	Modify Column  Previous/Next Page	Show on Static Text
	Alarm Name	Ті	me	State		]	Widgets Library	
	Alarm 1	20	01/1/14 12:00:00	Activated			Filter	8
	Alarm 2	20	01/1/14 12:20:00	Deactivated			Alarm Histor	able
	Alarm 1	20	01/1/14 13:00:00	Deactivated			Device_Info_	TBL
	Alarm 4	20	01/1/14 13:20:00	Activated	▼		Widget_TBL	
				Page	1/1		Datalog_TBL	n TBI

Exercise for Alarm History Table:

- a. Drag a [Button] widget, 6 [Numerical Input] widgets and a [Alarm History Table] from [Widgets Library] onto the screen.
- b. Refer to the alarm service dialog from previous section and connect the [Button] and [Numerical Input] widgets to the tags [Alarm trigger point 0] [Alarm trigger point 6], respectively.

Simulation & Verification:

It can be seen in the figure below. When the state value of the tag satisfies the trigger condition, the [Alarm History Table] will record the content of the occurred alarm.

	Al	l <mark>arm</mark> Histo	ry	
	Alarm Name	Time	State	
	Alarm4	2018.09.06 - 18:40:12	Deactivated	
	Alarm4	2018.09.06 - 18:39:11	Activated	
	Alarm2	2018.09.06 - 18:39:05	Activated	
	Alarm0	2018.09.06 - 18:38:55	Deactivated	
			▶ * 頁面 1	/3
0	Condition Value =ON	0 Condition Value	>75 0	Condition Value <=1000
0	Condition Value 2000	60 Condition Value	<40	
0	Condition Value != 100	0 Condition Value	e >=5000	HOME



## **RECIPE SETTING**

Version 2.00

### 14. Recipe Setting

[Recipe] is similar to the concept of database in programming. We can edit the state value of each field in advance by recipe and then write the state value in PLC or read from PLC back to recipe for preservation later.

#### 14.1 Recipe Setting

Click [Recipe Setting] in the item group [General Settings] under the tab [Setting].



#### 14.2 Structure of Recipe Setting

There are 3 tabs in recipe setting as follows:

- a. [Recipe Group]: define the recipe group of the application, including [No. of Fields] and [No. of Records]
- b. [Recipe Field] : each recipe group can add up to 99 recipe fields.
- c. [Recipe Record] : can add multiple recipe record and edit the default parameters for each field.



Exercise:

It can be seen in the figure below, the original production table in Excel from a client. Use recipe in iFACE Designer to import the production table for edit and use.

	A	В	С	D	E
1	Gas replacement times	Positive pressure setting H	Positive pressure setting L(mmHg)	Vacuum setting(Torr)	Cooling to temperature(TIC05)
2	23	32	152	35	12
3	46	23	36	65	32
4	12	23	36	15	12
5	18	22	43	35	56
6	24	17	50	25	56
- 7	30	12	57	20	67
8	36	7	64	15	78
9	42	2	71	10	89
10	48	56	78	5	100
11	54	78	85	53	112

a. In [Tags], add 6 new tags with their names defined as [Recipe index] and its corresponding address [@60]; [Recipe data 0] - [Recipe data 4] and their corresponding addresses [@61] ~ [@65], respectively.

Та	gs System	Information Tags	System Control	Tags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
47	Recipe Index	InternalMemory	UINT(16)	@60	
48	Recipe_0	InternalMemory	UINT(16)	@61	
49	Recipe_1	InternalMemory	UINT(16)	@62	
50	Recipe_2	InternalMemory	UINT(16)	<b>@</b> 63	
51	Recipe_3	InternalMemory	UINT(16)	@64	
52	Recipe_4	InternalMemory	INT(16)	@65	

 b. Open 【Recipe Setting】. Add a new recipe group with the name defined as 【Production data】.

Recipe Set	tting						-
Recipe (	Group Recipe Fie	ld					
-Edit rec	ipe group						
Langua	ige English	<u> </u>					
Auu	Delete			1	1	1	1
	Recipe Group	Recipe Index Tag	Row Offset Tag	Use Block R/W	No. of Fields	No. of Records	
0	Production data	Input Tag	Input Tag		0	0	
		_					
						0	OK Cancel

c. Switch to the tab [Recipe Field] and add 5 recipe fields. Define the field names based on the figure below and connect the tags to [Recipe data 0] - [Recipe data 4].

Recipe Group Recipe Field Recip	Recipe Group Recipe Field Recipe Record											
Edit recipe field Language English Add Add Many Delete	Select a Group Production dat	ta 🔻										
Field Name	Tag	Default Value										
0 Gas replacement times	Recipe_0	0										
1 Positive pressure setting H	Recipe_1	0										
2 Positive pressure setting L(mmHg)	Recipe_2	0										
3 Vacuum setting(Torr)	Recipe_3	0										
4 Cooling to temperature(TIC05)	Recipe_4	0										

d. Switch to the tab 【Recipe Record】 and add 10 recipe record. Edit the contents based on the example production table in Excel.

Recipe Group Recipe Field Recipe Record							
Edit r Lang Ad	Edit recipe     Select a Group       Language     English       Add     Delete						
	Recipe Name	Gas replacement times	Positive pressure setting H	Positive pressure setting L(mmHg)	Vacuum setting(Torr)	to temperature	
0	R_0001	23	32	152	35	12	
1	R_0002	46	23	36	65	32	
2	R_0003	12	23	36	15	12	
3 🗖	R_0004	18	22	43	35	56	
4 🗖	R_0005	24	17	50	25	56	
5 🔳	R_0006	30	12	57	20	67	
6	R_0007	36	7	64	15	78	
7 🗖	R_0008	42	2	71	10	89	
8	R_0009	48	56	78	5	100	
9	R_0010	54	78	85	53	112	

 e. Return to the tab 【Recipe Group】, connect 【Recipe Index Tag】 to the tag 【Recipe index】. Since sequential addresses are used in this example, so it is recommended to tick 【Use Block R/W】 to speed up reading and writing.

6	Recipe Set	ting					
	Recipe G	roup Recipe Fiel	d Recipe Record				
Edit recipe group Language English * Add Delete							
		Recipe Group	Recipe Index Tag	Row Offset Tag	Use Block R/W	No. of Fields	No. of Records
	0	Production data	Recipe Index 🛛 😒	Input Tag		5	10

f. Drag 5 [Numerical Input] widgets onto the screen and connect them to the tags [Recipe data 0] - [Recipe data 4], respectively.

Gas replacement times	6789		
Positive pressure setting H	6789		
Positive pressure setting L	6789		
Vacuum setting(Torr)	6789		
Cooling to temperature(TIC05	) 6789		
		2018/09/07	10.25

g. Then drag 6 [Numerical Input] widgets. Connect one of them to the tag
 [Recipe index] and the other 5 [Numerical Input] widgets to the corresponding recipe fields by recipe index tag.

Name: Tag:	Common Setting Project Transmission N koluminputDisplay_71	Max. 9999 Min. 0		Recipe 89 index	
	Protuction data		Gas replacement times	6789	6789
	Positive pressure settir		Positive pressure setting H	6789	6789
	Positive pressure settin		Positive pressure setting L	6789	6789
	Cooling to temperature		Vacuum setting(Torr)	6789	6789
			Cooling to temperature(TIC05)	6789	6789
	OK Cancel				
					2018/09/07 10:25

h. Add two action buttons and edit their action as 【Recipe Service】→ 【Read a Recipe from PLC】 and 【Write a Recipe to PLC】, respectively.

Simulation & Verification:

It can be seen in the figure below, the numerical input in the boxes with black outline on the left are the current data of the device while on the right are the data in the recipe.

- i. A specific field of the data can be written to the recipe on the right.
- j. Use the action button to write the data in the recipe back to the device or write the latest data of the device to the recipe.

	Re	ecipe 3 index		
Gas replacement times	PLC Address		Recipe Address	
Positive pressure setting H	22	Read a Recipe from PLC	22	
Positive pressure setting L	43		43	
Vacuum setting(Torr)	35	Write a Recipe to PLC	35	
Cooling to temperature(TIC0	5) <b>56</b>		56	
				HOME
			2018/09/07	10:48



## SECURITY SETTING

Version 2.00
# 15. Security Setting

Beside the drawing widgets and shape widgets from widgets library, every widget can set their access group. After the authorization has been set for a widget, only the users that satisfy the authorization are allowed to view this widget or operate this widget. Before setting the authorization for a widget, it is required to create users and user groups.

# 15.1 Security Setting

Click [Security Setting] in the item group [Application Settings] under the tab [Setting].



## 15.2 Edit Users



- A. [New] : add a new user.
- **B.** [Edit] : edit the selected user.
- **C.** [Remove] : remove the selected user.
- D. [Other]: set common security settings such as [Set time for auto logout],
   [Set time to close login dialog], etc.

#### 15.2.1 **New**

Add [New user] and edit [User Name] and [Password].

A New User	5 ×
User Name	Group =>
Password	
	ОК
	Cancel

[Group =>] : used in applications for restrictions of widget use in accordance with user groups.

A Edit User Group	<u>୧</u> ×
Group	New
	Remove
	ОК
	Cancel

For example, add new users: [winson] and [jamie] and use [Group =>] to add the two groups [Engineering personnel] and [Onsite operator].

A Edit Users	×
jamie	New
winson	Edit
A Edit User Group	? ×
Group	New
Onsite operator	Remove

#### 15.2.2 **Edit**

Edit user password and user group setting.

🕅 Modify User	2 <b>x</b>
User Name jamie	Group =>
Password 1234	
	ОК
	Cancel

For example, you can tick both groups, engineering personnel and onsite operator for the user winson.

A Edit User Group	
Group	
Site operators	
Engineering staff	

Only tick the group, onsite operator, for the user Jamie.

A	Edit User Group
	Group
	Site operators
	Engineering staff

#### 15.2.3 Other

A Basic security setting	? ×
Set time for auto logout.	10(Minute)
Confirm after auto logout	Confirm with login dialog
Set time to close login dialog.	30(Second) +
Input password with numerical	panel
	OK Cancel

[Set time for auto logout] : when stayed in idle for a certain amount of time, it will automatically logout the current user.

[Confirm after auto logout] : before reaching the auto logout time, the system will invoke a dialog inquiring whether to extend login time or not.

After 4 seconds, the system will logout. If you want to keep the status of login, press continue button.
continue

[Set time to close login dialog]: If a certain amount of time has already passed after clicking on the login window without login, then it will automatically close the login window.

[Input password with numerical panel]: If the password contains only numbers, then you can use a numerical panel to replace the default alphabetic panel for the convenience of users to type.

### 15.2.4 Authorization Setting

Every widget can set authorization. After an authorization has been set for a widget, only the users satisfied the authorization are allowed to view this widget or operate this widget.

For example, the item group [Authorization] for numerical input widgets are under the tab [Behavior].

$\blacksquare$	Common	Setting	Project Transmis	sion	Numeric	al Widget	Format	Behavior
Name:	kNumInputD	isplay_83	a	Acces	s Group:	Site operat	tors	
Type:	Numeric Inpu	security setti	b	Access	Denied:	Hidden		J
		Basic		_	_	Authorizati	ion	

k. [Access Group] : set the user groups that can view or operate this widget.

Press 🔜 on the right to invoke the pop-down menu for the selection of

groups. Authorize the access to the widget for multiple groups. When the login user belongs to the access groups, then he/she can operate this widget.

I. [Access Denied]

[Login Dialog] : when access is being denied, it will invoke a [Login Dialog] automatically. The operator has to select his/her username and enter the correct password in order to perform operations on the widget.

Login		
User Name		
jamie		•
Password		
Change Password		
	ОК	Cancel

[Hidden]: When access is being denied, the widget will be hidden and that you are not able to see it.

[Access Denied Icon]: when access is being denied, it will display a symbol [ ] at the upper-left corner of the widget to indicate that this widget cannot be operated by him/her.

Exercise:

a. In **[**Tags**]**, add a new tag with the name defined as **[**Security setting**]** and specify its corresponding address **[**@66**]**.

Та	gs	System li	nformation Tags	S	System Control 1	lags Recipe	e Tags		
	Ta	ag Name	me Connector		Туре	Address	Comment		
53	Sec	urity set	InternalMemory		UINT(16)	@66			

- b. Drag 6 [Numerical Input] widgets from the [Widgets Library] onto the screen and connect them to the tag [Security setting].
- c. For the 3 numerical input widgets in boxes with black outline on the left, tick
   [Onsite operator] under the tab [Behavior] → [Access Group] and set
   [Access Denied] as [Login Dialog], [Hidden], [Access Denied Icon],
   respectively.
- d. For the 3 numerical input widgets in boxes with orange outline on the right, tick [Engineering personnel] under the tab [Behavior]→[Access Group] and set [Access Denied] as [Login Dialog], [Hidden], [Access Denied Icon], respectively.

Simulation & Verification:

The login dialog is shown in the figure below.

If select the user: Jamie and enter the password: 1234, then it only allowed him to operate numerical input widgets in black on the left; if select the user: Winson and enter the password: 8888, then it would allow him to operate the numerical input widgets both on the left and on the right normally.





# **iFACE** Designer

# FTP SETTING

Version 2.00

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# 16.FTP Setting

This chapter will introduce how to use FTP [HMI as client]/[HMI as server] to read remote data and send remote data at a certain time.

Remark: Server data is saved in external USB disk or SD card. So, users should insert an external memory card in advance.



## 16.1 FTP Setting

Click [FTP setting] in the item group [Application Settings] under the tab [Setting].

1											iFACE Designer 1.6.70								
	Common Setting Project Transmission																		
	PLC Setting	Tag Setting	Recipe Setting	Alarm Service	Trigger Service	Data logger Service	(X) System variables	Macro Editor	Macro Manager	Schedule Service	Security Setting	Language Box	Statusbar Setting	Home Button Setting	Outer Device Setting	Project Properties	FTP Setting	Barcode Setting	PDF Setting
	General Settings																		

## 16.2 HMI as Client

[HMI as Client]

For example, you can define same time points every day to upload recipe or data log to FTP server or set the upload action by an action button.





Default IP for the exercise: 192.168.0.188

IP: 192.168.0.119

Exercise:

The computer is simulated as a server and connected to HMI. Use the action button to upload the data log to FTP server.

- a. Install the software **Z** FileZilla in the computer.
- b. Run the FileZilla Server Interface and set the server address, port and administration password.



\*. IP:127.0.0.1 Port:14147 Default server address for the software. If you changed the address, you will get a message saying "the connection has failed" or "Cannot access user configuration 22".

c. Go to the FileZilla server, click the icon in the figure below to enter user configuration to add user account name and password for FTP connection.

🔁 FileZilla s	erver						
File Serve	r Edit ?						
<b>4 8</b> 0	ケ 舎   験 <b>』 </b>						
FileZilla S	FileZilla Server version 0.9.25 beta						
Copyright 2	)01-2006 by Tim Kosse (tin	n.kosse@filezilla-	project.org)				
Connecting	Connecting to server						
Connected,	vaiting for authentication	n					
Logged on	Logged on						
Retrieving	Retrieving account settings, please wait						
Done retrie	Done retrieving account settings						
ID 🛆	Account	IP	Transfer				
				ь			
Disalayatha			O huter restined O R/s	O huter en it O D (			
Usplays the	user accounts dialog		0 bytes received 0 B/s	U bytes se it U B/e			

- d. Page/General
- A. Add a new user.
- **B.** Enter password. For example, create a user account name: Jamie and the password: 1234.

Users	×
Page: General Shared folders Speed Limits IP Filter	Account settings       Image: Constraint of the settings     Users       Image: Constraint of the settings     Image: Constraint of the setting of the
	Bypass userlimit of server         Maximum connection count:       0         Connection limit per IP:       0         Force SSL for user login       Remove         Rename       Copy
	Description
OK Cancel	You can enter some comments about the user

- e. Page/Shared folders
- **C.** Edit the directories such as D:\Me\_FTP\Datalog\ in the figure below.
- **D.** Tick the permissions for files.

## **FTP** Setting

Users	×
Page: General Shared folders Speed Limits IP Filter	Shared folders       Image: Shared folders         Directories       Aliases         H       Me_FTP data         Directories       Delete         Directories       Directories         Create       Delete         Delete       Delete         Vist       Vist         Add       Remove         Rename       Set as home dir         Add       Remove         Add       Renove         It ist       Expended         Vist       Add         Rename       Set as home dir         Rename       Copy
OK Cancel	

f. Activate FTP server after the setting is complete.

🔁 FileZ	'illa server				
File S	erver Edit ?				
<b>-</b>	)   🛼 £ 🧟 🤋 🛛 /// ci\ (	<b></b> •			
Creating	g listen socket on port 21				
Server o	online				
ID 🛆	Account	IP Transfer	Progress Speed		
Ready			0 bytes received	0 B/s 0 bytes sent 0 B/s @ @	

g. Simple connection test can be done using Windows file manager. For example, enter the IP of your own computer FTP://192.168.0.119. After confirmation, it will show the login window. Enter previously set user account name/password to login and connect.

← ← ftp://192.168.0.119/						
Internet Explorer						
若要登入這個 FT	P 伺服器,請輸入使用者名稱和密碼。					
FTP 伺服器:	192.168.0.119					
使用者名稱(U):	jamie					
密碼(P):	••••					
登入之後,您可以	將這個伺服器加到我的最愛,以便快速回到此伺服器。					
匿名登入(A)						
	登入(L) 取消					

h. If the connection is successful, then FileZilla server will show the connection state of the device.

Z FileZilla Server (127.0.0.1)	
File Server Edit ?	
🦩 🖹 🐘 🕰 📽 👔 📶 cıl 📰 🗸	
(000007)2015/8/5 下午 17:39:41 - (not logged in) (192.168.0.119)> 220-written by Tim Kosse (Tim.Kosse@gmx.de)	*
(000007)2015/8/5 下午 17:39:41 - (not logged in) (192.188.0.119)> 220 Please visit http://sourceforge.net/projects/filerilla/	
000007)2015/8/5 下午 17:39:41 - (not logged in) (192.188.0.119)> USER jamie	
[000007)2015/8/5 下午 17:39:41 - (not logged in) (192.188.0.119)> 331 Password required for jamie	
(000007)2015/8/5 下午 17:39:41 - (not logged in) (192.188.0.119)> PASS ****	
[000007)2015/8/5 下午 17:39:41 - jamie (192.188.0.119)> 230 Logged on	
[000007)2015/8/5 下午 17:39:41 - jamie (192.188.0.119)> CWD /	
[000007)2015/8/5 下午 17:39:41 - jamie (192.188.0.119)> 250 CWD successful. "/" is current directory.	
000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> TYPE A	
000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> 200 Type set to A	
[000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> PASV	
[000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> 227 Entering Passive Mode (192,168,0,119,193,172)	_
[000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)≻ LIST	=
[000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> 150 Connection accepted	
000007)2015/8/5 下午 17:39:41 - jamie (192.168.0.119)> 226 Transfer OK	Ŧ
ID 🛆 Account IP Transfer Progress Speed	
<del>-©</del> -000007 jamie 192.168.0.119	
Ready     240 bytes received     0 B/s     1,865 bytes sent     0 B/s	<b>© ©</b>

i. Open iFACE Designer to set HMI as client in FTP setting.

[FTP user group] is combined with security setting so designers are required to set [Security Setting] in advance.

- A. Create the same user account name and password as in FTP server.
- B. For example, the user account name: Jamie and password: 1234 used in

the previous example.

**C.** The details of security setting can be referred to chapter 15 of this manual.

User Name jamie Password	Group	New

D. Open FTP Setting: HMI as server – tick [Enable server at project startup].



E. Enable Daily Upload. As seen in the example shown in the figure below, connect to the server address 192.168.0.119 at 12 a.m. every day and start uploading the recipe/data log.

FTP Setting	×					
FTP user group:	Site operators					
HMI as client HMI as server						
C Enable Daily Upload						
Time:	上午 12:00:00 💲					
User:	Anonymous *					
Recipe	☑ Datalog					
Remote Director						
FTP Sites						
Add	Remove					
192.168.000.119	×					
OK Cancel						

F. Create an action button to open [FTP upload dialog].

When HMI is running, click the action button to open [FTP upload dialog] as shown in the figure below.

- i. Host: enter the desired server address for upload. It is set as 192.168.0.119 in this example.
- ii. User: enter the user account name. It is set as Jamie in this example.
- iii. Password: enter the user account password. It is set as 1234 in this example.
- iv. Select the datalog required to be uploaded.
- v. Upload.



X Upload data at a certain time every time or use the action button to open [FTP upload dialog]. After the upload action is completed, you can check the previously set directory D:\Me\_FTP\Datalog\ to make sure that data are being successfully written.

※ If the uploading action of server data to PC has failed, please check whether it is being blocked by Windows firewall of your PC. It is recommended to close the firewall first before testing the upload function of FTP.

### 16.3 HMI as Server

[HMI as server] : remote connection to the database in HMI server. For example, perform remote connection in PC to the database in HMI server to check the data such as recipe/alarm/datalog/project/current screen, etc.



Default IP for the exercise: 192.168.0.119

Exercise:

Use IE or file manager to connect to HMI server for checking the database.

- a. HMI as server
  - vi. [FTP user group] is combined with security setting so the designers are required to edit [Security setting] in advance.
    Create the same user account name and password as in FTP server.
    For example, the user account name: Jamie and password: 1234 used in the previous example.

A Modify User	8 X	A Edit User Group	? X
User Name jamie Password 1234	Group =>	Group ☑ Site operators ☑ Engineering staff	New Remove

vii. Select the tab [HMI as server] and tick the option [Enable server at project startup].



 viii. For PC, enter ftp://192.168.0.188 in an internet browser or file manager. After entering the user account name and password, you are login to HMI as server directly. Or use the method of <u>ftp://account name :</u> <u>password@address</u> to log in.

IP: 192.168.0.188

(→)  tp:///		
○ 正在等候 192.168.0.188	×	
檔案(F) 編輯(E) 檢視(V)	我的最愛(A) 工具(T) 說明(H)	
Internet Explorer		×
若要登入這個 FT	P 伺服器,請輸入使用者名稱和密碼。	
FTP 伺服器:	192.168.0.188	
使用者名稱(U):	Jamie	
密碼(P):	••••	
登入之後,您可以	將這個伺服器加到我的最愛,以便快速回到此伺服器。	
匿名登入(A)		
	登入① 取消	

ix. After login, you can browse the folders (recipe/alarm/datalog/project/current screen).

<u>و</u>	網際網路	192.168	.0.188						
檔案(F) 編輯(E)	檢視(V)	工具(T)	說明(H						
名稱	<u>~</u>		00	)- <mark>                                     </mark>	網際網路	• 192.168	3.0.188 🕨 data	alog	
📗 alarm			檔案(F)	編輯(E)	檢視(V)	工具(T)	說明(H)		
broject		_	名稱		A		大小	類型	
recipe			Lo	g_1_201401	15_21553	3.txt	7 KB	文字文件	
screenshot			🗎 Me	_Log1_2014	40120_022	2653.txt	24 KB	文字文件	
			🗎 Me	Log1_2014	40120_022	2744.txt	26 KB	文字文件	
			🗎 🗎 Me	Log1_2014	40120_022	2835.txt	14 KB	文字文件	
			🗎 🗎 Me	Log1_2014	40120_022	2926.txt	16 KB	文字文件	
		L	🗎 🗎 Me	Log1_2014	40120_023	3017.txt	18 KB	文字文件	



# **iFACE** Designer

# **VNC REMOTE MONITORING**

Version 2.00

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# **17.VNC Remote Monitoring**

This chapter introduces how to use perform VNC remote monitoring to control or operate HMI simultaneously.

Remark: the function of VNC remote monitoring only supports network HMI.

Click [Project Properties] in the item group [Application Settings] under the tab [Setting].



# 17.1 **Project Properties**

Project Properties	x
VNC server(testing)	
1234	

[VNC server (testing)] : Tick VNC server and edit the password for VNC server in the field below.

# 17.2 Setting of Project Setting Window

Click [Transfer Setting] in the item group [Download] under the tab [Project Transmission].

	Common	Setting P	roject Transmission	
Transfer Setting	Transfer	Application R	ecipe Compile	Online Offline Performance
Dow	nload	Upload	Verification	Simulation

Download Setting	×
Download Setting	
Download Function :	Qt Library *
Transfer Media :	Application Firmware
Ethernet Address	Application w/ Firmware Qt Library

Using VNC server for the first time: If you are using N series machine, then please install **[QT** Library ] before downloading (only required to install once); if you are using P series machine, then it is not required to install [QT Library] additionally.

After the installation is completed, download [Application w/ Firmware].

Simulation & Verification:

Run the program for VNC remote monitoring on the computer to monitor HMI.

You can download free VNC software (VNC Viewer is used in this example). After installing it in the computer, open Run Listening VNC Viewer.

For server, enter server address of HMI or the IP of the same local network. After completed, press OK.

After entering the password for authentication, you can perform the remote control normally.

RealVNC	VNC Viewer : Connection Details
VNC Server 4 (Service-Mode)	Server: 92.254.35.477
UNC Server 4 (User-Mode)	
Viewer 4	
<u></u>	About Options OK Cancel
	VNC Viewer : Authentication [No Encryption]
	Password: Cancel

Not only free software on computers but also free APP on IOS or Android tablets or cell phones support VNC remote monitoring. You can download them to monitor HMI.





# **iFACE** Designer

# MULTI-LANGUAGE

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# 18. Multi-Language

In accordance to custom language of local users, multi-language becomes quite important. Most widgets in iFace Designer support multi-languange. When we add a widget that supports multi-language on the screen, it will automatically add language information of the widget to language box.

Click [Language Box] in the item group [Application Settings] under the tab [Setting].



# 18.1 Language Box

😈 Lai	nguage Box		B		×
La	nguage		- Start-up Language-	Filter	
	A Add Delete		English	Field:     Content       Match:     Exact	Search
	Screen Name	Control ID	0 : English	C 1: 繁體中文	2:簡体中文
1	HOME/Home/Action	126139	Connection COM1\nFX3U PL	.C 連接 COM1\nFX3U PLC	Change\nScreen
2	HOME/Home/Action	126140	Connection COM1\nFX3U PL	.C 連接 COM1\nFX3U PLC	Change\nScreen
3	HOME/Home/Action	126247	System Tag	系統標籤	Change\nScreen
4	HOME/Home/Action	126248	System Tag	系統標籤	Change\nScreen
5	HOME/Home/Action	126351	Button and indicator	按鈕與指示燈	Change\nScreen
6	HOME/Home/Action	126352	Button and indicator	按鈕與指示燈	Change\nScreen
7	HOME/Home/Action	126526	Numerical	數值相關元件	Change\nScreen
8	HOME/Home/Action	126527	Numerical	數值相關元件	Change\nScreen
9	HOME/Home/Action	126792	List	清單	Change\nScreen
Те	xt Import/Expor				OK Cancel

- A. 【Add】: There are 3 kinds of default languages: 【English】, 【繁體中文】,
   【简体中文】. You can add up to 16 kinds of different languages.
- **B.** [Start-up Language] : Set the start-up language for HMI when being powered on.
- **C.** [Edit the texts of the widgets in different languages]: You can edit the texts

of the widget in different languages.

**D. [**Text Import/Export **]** : You can export multi-language text to TXT file and hand over to language specialist for translation and then import them back to use.

### 18.2 Switch Languages

E. Check whether the language of the widget on the screen is correct. You can select [Current Language] in the widget state bar below the edit area to change the display.



For example, change current language from 【English】 to 【繁體中文】. Then the texts on the screen will change from English to Chinese immediately.

Exercise:

- a. Drag a [Static Text] widget and 3 [Action Button] widgets from [Widgets Library] onto the screen.
- b. Click on action button widgets and set their actions as 【System Service】→
   【Set Language】 and set setting of action parameters as the three
   languages: 【English】, 【繁體中文】, 【简体中文】, respectively.
- c. You can use the field [Current Language] at the widget state bar below the edit area to switch to the desired language rapidly for editing the contents of static text and action button conveniently.

$\mathbf{igstar}$	Common	Setting	Project Tra	nsmission	Static Text	Format	Behavior	
Name:	KStaticText_87			Text:	Display la	nguage		* *
Type:	Static Text			Alignment:	Center			* 🔇
	Bas	sic				Text/Alignn	nent	

	splay langua English	age
English	繁體中文	簡体中文
🖉 🖻 🕰 🤭 Current	t Language <mark>English ×</mark>	Periodic interval Normal

Simulation & Verification:

It can be seen in the figure below, you can press the 3 action buttons to switch the language of the static text. The static text will display the contents in the corresponding language immediately.

Display language English	
English 繁體中文 簡体中文	
2018/09/07	HOME



# **iFACE** Designer

# HOME BUTTON AND STATUS BAR

Version 2.00

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# 19. Home Button and Status Bar

Home button is a generic function key for performing the same action whenever being pressed on any page. For example, functions such as back to main screen, turn on/turn off backlight. The status bar is for displaying message states related to HMI.



## 19.1 Home Button Setting

Click [Home Button Setting] in the item group [Application Settings] under the tab [Setting].

		9 🔊	<b>(</b>											iFACE Design	er 1.6.70				
	<u> </u>	Commo	n Se	etting	Project T	ransmission													
			Berine		Triager	Data logger	(X) Sustam			Schedule	Security			Home Button	Quter Davice	Project		Barrode	
Setti	ng S	Setting	Setting	Service	Service	Service	variables	Editor	Manager	Service	Setting	Box	Setting	Setting	Setting	Properties	Setting	Setting	Setting
					General	Settings								Application	Settings				

#### 19.1.1 Home Button Setting

Home Button Setting	×
-Home Button Setting-	
Туре	Normal
Perform actions when	pressed.
Back to BIOS	Edit
Perform actions when	second pressed.
	Edit
[	OK Cancel

[Normal] : perform actions when pressed.

[Toggle] : perform action when pressed for the first time and perform other actions when second pressed.

X The edit method for actions when pressed the home button is the same as the action button, so please refer to chapter 6.

### 19.2 Status Bar Setting

Click [Status Bar Setting] in the item group [Application Settings] under the tab [Setting].



#### 19.2.1 Status Bar Setting



- A. [Status Bar Setting]: You can select between two kinds of background color, [Black] or [White] and select among the 4 positions for the status bar, Right, Left, Top, Bottom of the screen.
- **B.** [Display contents]: It can be divided into 4 parts: System, Communication, Peripheral and Notify. Users can tick the related items on the screen based their design requirement.



# **iFACE** Designer

# TRIGGER SERVICE

Version 2.00

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# 20. Trigger Service

Set the state value of the tag read during communication as the trigger condition to perform actions that are designed and edit in advance when the condition values hold.

### 20.1 Trigger Service

Click [Trigger Service] in the item group [General Settings] under the tab [Setting].



## 20.1.1 Trigger Service Dialog

ſ	0	Trigger Ser	vice D	Dialog						×
		Triggers	Tri	gger Scope						
		Add		Delete						
		ID		Trigger Name	Source Type	Tag	Condition	Condition Value	Action	
									OK	Cancel
									on	- Culloo

[Tag]: Edit [Trigger Name] and set [Source Type], [Condition], [Condition Value] and [Action] when triggered by connecting the tag.

Source Type	Condition	Condition Value
Bit Type	SET = 1 Clear = 0 Changed (state change)	No need to fill in. No effect if filled in.
Register Type	<ul> <li>= (equal)</li> <li>=! (not equal)</li> <li>&gt; (greater than)</li> <li>&lt; (less than)</li> <li>&gt;= (equal to or greater than)</li> <li>&lt;= (equal to or less than)</li> <li>Changed (state change)</li> </ul>	Any value. Does not support characters as condition value for determination.

### 20.1.2 Trigger Scope

- A. We provided [Global] and individual [Screen] for trigger scope.
- **B.** [Triggers] : display the current trigger names that have been edited.
- **C.** [Current triggers] : display the trigger name that has been added.
- **D.** [Description] : display the content for the selected [Triggers].

Triggers Trigger Sco	ре	_	
Name A	ID	Triggers	
Global	N/A	D Name B	1
Home	1	0 Back Home	1
FX3U	3	1 Status count	
System information	6	1 Otatus count	
Add System Control	5		5
Button & Lamp	8	Add	
IND & Lamp	9	Current triggers	
Numercic	10		
Meter	11	ID Name	
Action Button	18	0 Back Home	
List	12	0 Dack Home	
Message	13		
Static Picture	14		
GIF	15		
Line Chart	16		
XY Chart	1/		
Trond	20	Delete	
Alarm Frequency Table	22	Description	
Current Alarm Table	19		
Alarm History	23	IF (#Global Trigger =100) THEN	
Recipe	24	RUN( ChangeScreen(1) )	
Security setting	25		
Display language	28		
Trigger	29		
Macro EXampie II	32		
Macro EXampie iii	33		T
Screen	34		

Exercise 1:

a. In [Tags], add a new tag with the name defined as [Global trigger service test] and specify its corresponding address [@67].

Та	gs System li	nformation Tags	System Control Ta	ags Recipe T	Recipe Tags	
	Tag Name	Connector	Туре	Address	Comment	
54	Global Trigger	InternalMemory	UINT(16)	@67		

b. Under the tab 【Triggers】, add one trigger. Fill in the tag 【Global trigger service test】 in the field tag and set condition value as 100 and the action as change screen.

T	rigger Service Dialo	g					×
T	riggers Trigge	er Scope					
	Add De	elete					
	ID	Trigger Name	Source Type	Tag	Condition	Condition Value	Action
	1 0	Back Home	Register Type	Global Trigger	=	100	Change Screen(HOME,Home,1)

c. Select [Global] under the tab [Trigger Scope] and add back to main page into current triggers.

0	Trigger Service Dialog			x
	Triggers Trigger Sco	ре		
	Name	ID	Triggers	
	Global	N/A	ID Name	
	Home	1		
	FX3U System information	3	0 Dack Home	
	System Control	5		
	Add System Tag	7	Add	
	Button & Lamp	8		
	Numercic	9	Carrent triggers	
	Meter	11	ID Name	
	Action Button	18	0 Back Home	
	List	12		
	Message Static Picture	13 14		
	GIF	15		
	Line Chart	16		
	XY Chart	17		
	Trend	20	Delete	
	Alarm Frequency Table	22	Description	
	Current Alarm Table	19		
	Alarm History	23		
	Security setting	25		
	Display language	28		
	Trigger	29		
	Macro Example II Macro Example II	32		
	Screen	34		
		[		
			OK Cancel	

d. Drag a [Numerical Input] widget from [Widgets Library] onto the screen and connect it to the tag [Global trigger service test].

Simulation & Verification:

Add the tag [Global trigger service test] and enter the value = 100 in any screen in any exercise from previous section, it will switch the screen back to main page automatically.



Exercise 2:

a. In [Tags], add 2 tags with their names defined as [Trigger test 1] and [Trigger test 2] and specify their addresses [@68] and [@69], respectively.

Та	gs System Information	n Tags System Co	ntrol Tags R	ecipe Tags	
	Tag Name	Connector	Туре	Address	Comment
55	Trigger1	InternalMemory	UINT(16)	@68	
56	Trigger2	InternalMemory	UINT(16)	@69	

b. Under the tab [Triggers], add one trigger and connect to the tag [Trigger test 1], set condition as [changed] and set the action as [PLC Service]
 → [Add Value] making the tag [Trigger test 2] add 1 to its state value.

Trigger Service Dialo	g						
Triggers Trigge	er Scope						
Add De	elete						
ID	Trigger Name	Source Type	Tag	Condition	Condition Value	Action	
1 0	Back Home	Register Type	Global Trigger	=	100	Change Screen(HOME,Hom	e,1)
2 1	Status count	Register Type	Trigger1	changed	0	Add Value(Trigger2,1,1000)	
Actions		A	ction Parame	ters	-		
↑ Add Value			Pa	rameter	S	etting	
1			1 Tag		Trigger2	8	
			2 Add Value		1		
			3 Value Limit		1000		

c. Click [Trigger Service] under the tab [Trigger Scope] and add a state counter to current triggers.

Name	ID	Triggers
Global Home FX3U System information System Control Add System Tag Button & Lamp INUD & Lamp Numercic Meter Action Button List Message Static Picture GIF Line Chart XY Chart Datalog Table Trend Alarm Frequency Tab Current Alarm Table Alarm History Recipe Security setting Display language <b>Trigger</b> Macro EXample II Macro EXample II Macro EXample II Macro EXample II	N/A 1 3 6 5 7 8 9 10 11 18 12 13 14 15 16 17 20 21 21 21 21 22 23 32 33 34	ID Name 0 Back Home 1 Status count Add Current triggers ID Name 1 Status count Delete Description IF (#Trigger1 changed0 ) THEN RUN(AddValue(57,1,1000) )

Simulation & Verification:

Modify only the state value of the numerical widget connected to the tag [Trigger test 1] on the trigger service screen. If finished, the action of adding 1 to the state value of the tag [Trigger test 2] will be performed.





# **iFACE** Designer

# MACRO

Version 2.00

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# 21. Macro

iFACE Designer provides convenient and powerful method for macros. It also provides effective system integration through the functions of macros such as [Control Flow], [Conditions], [Functions] for becoming the most low-cost structure for hardware.

## 21.1 Macro Editor

Click [Macro Editor] in the item group [General Settings] under the tab [Setting].



### 21.1.1 Macro Editor

Macro Editor	Program C	
Add Delete Syntax Check Export Import Initial Motor Temperature	Macro Name: Initial          1       #Backlight=20       Image: Beach and the second sec	Control Flow Conditions Functions
		OK Cancel

- A. Add a new macro by [Add] or [Import].
- **B.** Please refer to the user manual for the description of **[**Program**]** such as control flow, syntax, functions.

#### ※Remark:

1. When using tags in macro, you need to add the symbol [#] in front of the tag name.

2. Tag name cannot have special characters. For example, [@], [\$], etc.

**C.** [Syntax Check] : select [Syntax Check] after editing the program for macro to make sure whether the program of macro is correct.

### 21.1.2 Instruction List

Instruction	Description	Macro Syntax			
Control Flow					
Break	Loop command: Breaks a loop	break			
End	Loop command: End a loop	end			
If then	Loop command: Ifthen	if (Conditional) then			
else if then	Loop command: otherwise,	else if (Conditional) then			
	ifthen				
Else	Loop command: otherwise	else			
While then	Loop command: continue the	while (Conditional) do			
	loop if the condition holds				
Goto	Force to skip to the specified	goto (tag name)			
	line				
For [var = start , end]	Loop command: run increment	for parameter = start value, end			
	circulation for the range	value do			
Comment	comment				
Conditions					
==	Determine whether A1 equals	A1==A2			
	to A2				
~=	Determine whether A1 is not	A1~=A2			
	equal to A2				
>	Determine whether A1 is	A1>A2			
	greater than A2				
<	Determine whether A1 is less	A1 <a2< td=""></a2<>			
	than A2				
>=	Determine whether A1 is equal	A1>=A2			
	to or greater than A2				
<=	Determine whether A1 is equal	A1<=A2			
	to or less than A2				
Functions					
ABS	Calculate the absolute value	A1=ABS (A2)			
ADD	Addition	A1=ADD (A2, A3)			

AND	Logic AND	A1=AND (A2 , A3)	
ASC	Convert Hex to ASCII	A1=ASC (A2)	
BCD	Convert BIN to BCD	A1=BCD (A2)	
BIN	Convert BCD to BIN	A1=BIN (A2)	
BMOV	Move blocks	BMOV (A1 , A2 , A3)	
BMOVB	Move bit blocks	BMOVB (A1 , A2 , A3 , A4 , A5 )	
COS	Trigonometric function (Cosine	A1=COS (A2)	
	function) COS		
СОТ	Trigonometric function	A1=COT (A2)	
	(Cotangent function) COT		
CSC	Trigonometric function	A1=CSC (A2)	
	(Cosecant function) CSC		
DELAY	Delay in milliseconds	DELAY (A1)	
DIV	Division	A1=DIV (A2 , A3)	
FG	Return the corresponding	A1 = FG(A2, A3, A4)	
	value of the coordinates		
FILL	Fill up the memory	FILL (A1 , A2 , A3)	
HEX	Convert ASCII to Hex	A1=HEX (A2)	
INV	Inverse the lowest bit	A1=INV (A2)	
INVB	Specify inverse bits	A1=INVB (A2 , A3)	
IRD	Indirect read	A1=IRD (A2 , A3)	
IWR	Indirect write	IWR (A1 , A2 , A3)	
LG	Find the larger value	A1=LG (A2 , A3)	
LOG	Calculate natural log of the	A1=LOG (A2)	
	parameter value		
LOG10	Calculate natural log with 10 as	A1=LOG10 (A2)	
	base of the parameter value		
MAX	Find the maximum	A1=MAX (A2 , A3)	
MEAN	Calculate the average value	A1=MEAN (A2 , A3)	
MIN	Find the minimum	A1=MIN (A2 , A3)	
MMOV	Move item by item	MMOV(A1,A2,A3,A4,A5,A6,)	
MOD	Division and take remainder	A1=MOD (A2 , A3)	
MOVB	Move bits	MOVB (A1 , A2 , A3 , A4)	
NEG	Take the complement of 2 for	A1=NEG (A2)	
	the parameter value		
NOT	Logic NOT	A1=NOT (A2)	
OR	Logic OR	A1=OR (A2 , A3)	

P2R	Write PLC value to the recipe	P2R (A1 , A2 , A3 , A4 , A5)	
R2P	Write the recipe value to PLC	R2P (A1 , A2 , A3 , A4 , A5)	
R2PS	Write multiple recipe values to	R2PS (A1 , A2 , A3 , A4 , A5 ,	
	PLC	A6 )	
R2R	Copy the recipe	R2R(A1,A2,A3)	
R2T	Write the data of recipe A to	R2T(A1, A2, A3, A4, A5, A6, A7	
	recipe B		
RCNT	Obtain the quantity of the	RCNT(A1)	
	recipe		
RDB	Read the nth digit of the	A1=RDB (A2 , A3)	
	parameter		
RN2P	Write the recipe name to a	RN2P(A1,A2,A3)	
	string tag		
RNID	Search for recipe name	A3=RNID(A1,A2)	
RST	Clear the lowest bit	A1=RST (A2)	
RSTB	Clear the specified bit	A1=RSTB(A2,A3)	
RSTR	Clear the recipe log	A1=RSTR (A2 , A3)	
SCMP	Compare strings	A1=SCMP (A2 , A3 , A4)	
SEC	Trigonometric function (Secant	A1=SEC (A2)	
	function) SEC		
SET	Set the lowest bit	A1=SET (A2)	
SETB	Set the specified bit	A1=SETB (A2 , A3)	
SHL	Shift the bit to the left	A1=SHL (A2 , A3)	
SHR	Shift the bit to the right	A1=SHR (A2 , A3)	
SIN	Trigonometric function (Sine	A1=SIN (A2)	
	function) SIN		
SM	Find the smaller value	A1=SM (A2 , A3)	
SUB	Subtraction	A1=SUB (A2 , A3)	
SUM	Calculate the sum	A1=SUM (A2 , A3)	
SWAP	Swap endianness	A1=SWAP (A2)	
SYNC	Sync and update data to PLC	SYNC (A1)	
SYNCB	Sync and update all data to SYNCB ()		
	PLC		
T2R	Send the data from the tag to	T2R(A1, A2, A3, A4)	
	recipe		
TAN	Trigonometric Function A1=TAN (A2)		
	(Tangent Function) TAN		

WRB	Determination of zero	A1=WRB (A2 , A3 , A4 )
XOR	Logic XOR	A1=XOR (A2, A3)
Math Operation		
=	Equal	A1=A2
+	Addition	A1=A2+A3
-	Subtraction	A1=A2-A3
*	Multiplication	A1=A2*A3
/	Division	A1=A2/A3
%	Division and take the	A1=A2%A3
	remainder	
()	Call the macro	Macro name ()

## 21.2 Macro Manager

Select [Macro Manager] in the item group [General Settings] under the tab [Setting]



### 21.2.1 Macro Manager

Macro Manager		×
Screen Name	ID	Open B
Global	N/A	Initial
Home	1 <b>D</b>	
FX3U	3	#Backlight=20
System information	6	#Language_ID=0
System Control	5	#Alarm2=100
Add System Tag	1	#Alarm4=100
Button & Lamp	8	Proviour Initial
IND & Lamp	9	
Numercic	10	
Meter	11	Loop
Action Button	18	
List	12	· · · · · · · · · · · · · · · · · · ·
Message	13	100ms *
Static Picture	14	Tooms
	15	
Line Chart	10	
XY Chart	17	
Datalog Table	20	
Alerea Francia Table	21	
Alarm Frequency Table	10	Preview: Edit
	19	
Alarm History	23	Close
Recipe	24	Gibbe
Security setting	25	· · ·
Display language	28	
Trigger	29	
Macro Example II	32	
Nacro Example III	00 24	
SCIERII	04	
		Preview: Edit
		OK Cancel

- **D.** Screen Name: display all the screens in the project.
  - Global ]: represents that the macro will run based on the set time condition no matter which screen it is on.
  - [Screen]: represents that the macro will only run based on the set time conditions when stayed on that screen.

Remark: Beside sub screens, every screen can set the condition for running macro.

- E. [Open]: macro will only run once when the screen is opened. If [Global] is being set, then the macro will only run once when the project is being activated.
- F. [Loop] : macro will run periodically when opening the screen based on the time interval set below. If [Global] is being set, then macro will continue to run periodically after the project is being activated.
- **G.** [Close] : macro will only run once before closing the screen. If [Global] is being set, then macro will run once before the project is being closed.

### 21.2.2 Example of Macro Program-Default Parameter Setting

Based on the example exercises in previous chapter, such as the exercise for system control tags in chapter 3 and the exercise for alarm in chapter 13, they will create problems such as alarm messages or changing the backlight to dark when electricity was resent to HMI every time. You can ensure that start-up to be normal by using macro to initialize.

- a. [Tag Setting] : keep using the tags in the exercises of chapter 3 [System Control Tag] and chapter 13 [Alarm Service].
- b. [Macro Editor] : add a new macro. Set the macro name as [Initial parameters]. The macro program is shown in the figure below:

 $\overline{}$ 

Macro Editor	
Macros	Program
Add Delete Syntax Check	Macro Name: Initial
Export Import	1 #Backlight=20 2 #Language ID=0
Initial	3 #Alarm2=100
	4 #Alarm4=100
	5 #Alarm6=5000

c. [Macro Manager]: set the screen name as[Global N/A] and then select the macro name [Initial parameters] in [Open].

<b>O</b> M	lacro Manager			×
So	creen Name	ID	Open	
GI	obal	N/A	 Initial	· ·
Ho	ome	1		
F	(3U	3	#Backlight=20	A 11
Sy	stem information	6	#Language_ID=0	
Sy	stem Control	5	#Alarm2=100	
Ad	ld System Tag	7	#Alarm4=100	<b>•</b>
Bu	utton & Lamp	8		
IN	D & Lamp	9	Preview: Initial	Edit
Nu	umercic	10		

Simulation & Verification:

When macro is not being performed, the display language on the screen will be English when HMI runs the project every time after HMI is being powered on again. Since the trigger condition for the alarm is being satisfied, so it will create sub screens for the alarm.



After running the macro, , the display language on the screen will be 繁體中文 when HMI runs the project every time after HMI is being powered on again. Since the trigger condition for the alarm is not being satisfied, so it will not create sub screens for the alarm and the backlight will be displayed as the brightest.

Connection COM1 FX3U PLC	List	Datalog Table	Language
System Tag	Message Display	Trend Chart	Trigger
Button and indicator	Static Picture	Alarm Table	Macro
Numerical	Line Chart	Recipe	
Action Button	YX Chart	Security Setting	Vie

### 21.2.3 Example of Macro Program – Unit Conversion

Unit conversion has been commonly set as macro program. In this example, temperature in Celsius is converted to temperature in Fahrenheit.

a. In [Tags], add 2 tags with their names defined as [Temperature in Celsius] and [Temperature in Fahrenheit] and specify their corresponding addresses [@70] and [@71], respectively. Set type as INT (16).

Та	ags System Information Tags		System Control 7	Tags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
57	Celsius	InternalMemory	INT(16)	@70	
58	Fahrenheit	InternalMemory	INT(16)	@71	

b. [Macro Editor]: add a new macro Set the macro name as [Convert Celsius to Fahrenheit].

Original formula: Fahrenheit=Celsius\*(9/5) + 32. If it was being calculated directly, then the obtained decimal will not be displayed. So, you must multiply the whole formula by 10 to calculate the temperature in Fahrenheit correctly.

The macro program is shown in the figure below:

Macro Editor	
Macros-	Program 2
Add Delete Syntax Check	Macro Name: Temperature
Export Import	1 #Fahrenheit=(#Celsius*10)*(90/50)+320
Initial Temperature	

c. [Macro Manager]: set the screen name as [Macro example 2]. Select the macro name [Convert Celsius to Fahrenheit] in [Loop] and set the time interval as 1000ms.

😡 Macro Manager		×
Screen Name ID	)	Open
Global N/	/A	
Home 1		
FX3U 3		
System information 6		
System Control 5		
Add System Tag 7		
Button & Lamp 8		
IND & Lamp 9		Preview: Edit
Numercic 10	0	
Meter 11	1	000
Action Button 18	8	
List 12	2	Temperature
Message 13	3	
Static Picture 14	4	100ms *
GIF 15	5 🔰	#E-hasehait=(#C-laive#40)#(00/E0)+000
Line Chart 16	6	#Fanrenneit=(#Ceisius*10)*(90/50)+320
XY Chart 17	7	
Datalog Table 20	0	
Trend 21	1 /	
Alarm Frequency Table 22	2	Preview: Temperature Edit
Current Alarm Table 19	9	
Alarm History 23	3	
Recipe 2	4	Close
Security setting 25	5	
Display language 28	8	
Trigger 29	9	

d. Drag 2 [Numerical Widget] from [Widgets Library] onto the screen. Connect them to the tags [Temperature in Celsius] and [Temperature in Fahrenheit]. Remark: since we did first multiply [Temperature in Celsius] by 10, so we must set the decimal places as 1 to display the actual value of [Temperature in Fahrenheit] correctly.

Simulation & Verification:

Temperature in Celsius 22 degrees = Temperature in Fahrenheit 71.6 degrees

	Celsius	Fahrenheit	
temperature change	22	71.6	
			NEXT
		2018/09/07	15:16

### 21.2.4 Example of Macro Program-Conditional Determination

Design a button for triggering the conditions. When triggered, the value will start to add up. When the value has reached the value limit, then it will return to zero.

a. In [Tags], add 2 tags with their names defined as [Motor trigger switch] and [Motor rotation speed] and specify their corresponding addresses [@72.0] and [@73], respectively.

Та	ags System I	nformation Tags S	System Control	lags Recipe	Tags
	Tag Name	Connector	Туре	Address	Comment
59	Motor_Key	InternalMemory	Bit	@72.0	
60	Motor_running	InternalMemory	UINT(16)	@73	

b. [Macro Editor] : add a new macro. Set the macro name as [Conditional determination]. The macro program is shown in the figure below:

Wacro Editor	
Macros	Program
Add Delete Syntax Check	Macro Name: Motor
Export Import	1 if #Motor_Key ==1 then 2 #Motor_running=#Motor_running=1
Initial	3 if #Motor_running==100 then
Motor	4 #Motor_running=0
Iemperature	5 end
	o end

[Micro Manager] : set the screen name as [Macro example 3]. Select the macro name [Conditional determination] in [Loop] and set the time interval as 500ms.

Screen Name	ID	Open	
Global	N/A		Ψ.
Home	1		
FX3U	3		
System information	6		
System Control	5		
Add System Tag	7		
Button & Lamp	8		
IND & Lamp	9	Preview:	Edit
Numercic	10		
Meter	11		
Action Button	18		
List	12	Motor	+
Message	13		
Static Picture	14	50ms	Ŧ
GIF	15	17 MA 1 16 10	
Line Chart	16	if #Motor_Key ==1 then	ē
XY Chart	17	#Motor_running=#Motor_running	+1 🖃
Datalog Table	20	if #Motor_running==100 then	
Trend	21	#Motor running=0	Ŧ
Alarm Frequency Tab	le 22	Proview: Motor	dit
Current Alarm Table	19		Luit
Alarm History	23		
Recipe	24	Close	
Security setting	25		
Display language	28		· ·
Trigger	29		
Macro EXampie II	32		
Macro EXampie iii	33		

c. Drag a [Button] widget and a [Meter] widget from [Widgets Library] on to the screen. Connect them to the tags [Motor trigger switch] and [Motor rotation speed], respectively.

Simulation & Verification:

When the button [Motor trigger switch] is being switched to ON state, the state value of the meter will add up from 0 to 100 in forward circulation.





# **iFACE** Designer

# PERIODIC INTERVAL

Version 2.00

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# 22. Periodic Interval

Periodic command is a brand-new communication method. It is different from the tradition polling communication method such that it adopts time as the basis for whether to make the communication or not. After each communication command is completed, the periodic command will check whether the current time has reached the set time interval and then make communication when time exceeds.

## 22.1 Periodic Interval

Select periodic interval as [Global] or [Local] in the item group [Periodic Interval] under the tab [Common].



Two sets of periodic command are provided for every screen. Users can set the periodic interval for each set of periodic command. Since the communication state of each screen is not the same in each project, we recommended you to take the baud rate for communication and the communication rate of the connected PLC or controller into account when setting the periodic interval.

For periodic interval [Global G1], the screens that have selected [Global] in periodic interval will be changed when the periodic interval [Global] is changed.

For periodic interval [Local G2], each screen can define its own periodic interval independently. Tick [Local] in periodic interval to match the needs of the screen. If you need to have a more accurate periodic interval for the state of the screen, select [Local] in periodic interval will be a good option for you.



# 22.2 Periodic Interval of a Widget

Set the periodic interval for reading based on the needs of a widget. Select [Periodic Interval] located at the bottom of the screen for the widget.



## 22.3 Communication Command Setting

We provide all kinds of services in iFace Designer to assist the users to complete the required function easily and rapidly. For example, the alarm service can provide alarm messages for handling incidental conditions; trigger service can handle specific work-based state value of tags; macro can help high-level users to design the more advanced and accurate actions in the project.

Most of these services requires reading the information of tag, so we provide [Communication command setting] for users to define the read action for these services more accurately.

Two sets of periodic interval (G1 and G2) can be set in the item group [Periodic Interval] under the tab [Common] first, then click on [Communication command setting] in the same item group for more advanced setting.



### 22.3.1 Screen Tags Information

Browse through the periodic interval of global service tag information and screen tag information in every screen and make modifications to the periodic interval.

Communication command setting	dialog 🤋 💌	[]
Screens	Comron C ·	[Global Service Tag Information]
Name wait power on message Main Menu 31 PALLET CHG. Time Setting Parameter Edit machine memory I/O Page 1 30CH DGN. Page I/O CH DGN. Page U/O CH DM IMG. Page DM10-24 multi job Screen102 Screen124 Screen132 Screen132	Screen Tags Information       Block Command         Global G1       200       ms       Global G2       1000       ms       Save Intervals         Global Service Tag Information       Service Tag Name       Address       Periodic interval       1         1       Cache       S>NULL       Normal       •         2       Debu       S>NULL       •         3       Syste       DM200       G1 (200ms)       •	Check the periodic of all screen alarms/data log/macro/trigger service, etc.
mon Menu Change (Main Menu)	Object Name Reading Tag Address Periodic interval Active Tag	[Screen Tag information]
Menu Change (Manual) Menu Change (Multi job) Menu Change (Alarm) Menu Change (DGN.)	7         kButton_84         HR3200         HR3200         Normal         -           8         kButton_85         HR3201         HR3201         G1 (200ms)         -         =	View the label and read periodic time
Menu Change(Setting 2/2) HELP (Main Menu)	9 kButton_86 HR3202 HR3202 Normal -	interval of the selected page.
HELP (Manual) HELP (Line Setting) HELP (Diagnose) HELP (Readiness)	10         kButton_87         HR3203         HR3203         G2 (1000ms)           11         kButton_88         HR3204         HR3204         Normal	
	OK Cancel	

### 22.3.2 Block Command

Communication command setting	dialog	[Priority Plack Command]
Screens	C Link	FRIORITY BLOCK COMMAND
	Omron C ·	Widgets displayed in priority block
Name A	Screen Tags Information Block Command	command can enhance its speed by
power on message Main Menu 31	Block commands	【Periodic interval】.
PALLET CHG.		
Lime Setting Parameter Edit	Interval Station ID Command Length Data size	
machine memory	1 200ms DM200 1 2 W	
I/O Page 1 30CH		
DGN. Page I/O CH DM IMG Page DM10~24		
multi job	Normal Block Command	
Screen52	Station ID Command Length Data size Data type M	
Screen116		
Screen124	1 AR15 1 2 Word Norm	
Screen132	2 DM209 6 12 Word Norm	
mon		
Menu Change (Main Menu)		
Menu Change (Manual)		[Normal Block Command]
Menu Change (Multi job) Menu Change (Alarm)	Data Mar	
Menu Change (DGN.)	Byte map Command information	The number of blocks composed by all the
Menu Change(Setting 2/2)	B     B <td></td>	
HELP (Manual)		widgets on a screen can be seen here. If
HELP (Line Setting)		
HELP (Diagnose)		the discontinuity of the data is higher,
		then the number of blocks for the
	OK Cancel	
		composition will increase, which will
		affect the communication rate.

Browse the configuration of block command in every screen.



# **iFACE** Designer

# SCHEDULE SERVICE

Version 2.00

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# 23. Schedule Service

[Schedule Service] is a tool for users to set actions in advance easily and conveniently. For example, turn off the power of devices that are not used for security during lunch break time every day and turn them back on during office hours automatically, etc.

Make good use of [Schedule Service] can greatly reduce these complicated and repeated actions run by PLC.

### 23.1 Schedule Service

To set schedule service, please click [Schedule Service] in the item group [Application Settings] under the tab [Setting].



The figure below shows the dialog for schedule service.

We must set all the possible schedule items one by one when editing the project. Once the project is running, you can only modify the date and time of the schedule type [Dynamic].

0	Dialog									X
	Schedule Item Add Delete	Filter Exac Q K	ct match ey Word							
	ID Name T	ime Type	Start Day	Start Time	Start Action	End Day	End Time	End Action	Enable by Bit	Auto Run when Pov
	4									
										OK Cancel

You can add or delete a [Schedule Item].

Schedule Item						
A	B					
Add	Delete					

- A. [Add] : you can add a schedule item. Currently, you can add up to 100 schedule items.
- **B.** [Delete] : you can delete all the selected schedule items.

After pressing [Add] in [Schedule item], it will invoke a [Schedule Time Setting Dialog], then we can start to design the required schedule items one by one.

Schedule Time Setting Dialog
Schedule Type <ul> <li>Constant</li> <li>Dynamic</li> </ul>
Date Type  Weekly  Individually  Specified
Use end time.
Auto run when power on.
Use Enable Bit HR3609
Time Setting
Start Time
🖸 Sunday 🔍 Monday 🗖 Tuesday 📄 Wednesday
🗖 Thursday 🔲 Friday 📄 Saturday
End Time
OK Cancel

[Schedule Type] : set the schedule type, [Constant] or [Dynamic].

- a. [Constant] : set a constant time, such as a certain month or starting from a certain hour, minute, second to a certain hour, minute, second on certain days in a week, to perform the specified actions periodically.
- b. [Dynamic] : set a certain time setting at any time during the operation to perform the specified actions.

[Data Type]: set the date type for the schedule item, [Weekly], [Individually] or [Specified].

- a. [Weekly] : set a certain amount of time on certain days (may set number of days) each week to perform the specified actions.
- b. [Individually] : set a certain amount of time on a certain day (only one day) each week to perform the specified actions.
- c. [Specified] : set a certain amount of time on a certain day to perform the specified actions.

[Use end time] : if you tick this option, then you can enable [End Time] in time setting.

[Auto run when power on] : If that schedule time setting is being activated and kept running, then it will perform the specified actions automatically when being powered on again.

Remark: since trigger conditions for schedule items is the set [Start time], then it will perform the specified actions when reaching that moment (an upper differential pulse). Hence, the system will not perform the specified actions when power on if you did not tick that option.

[Use Enable Bit] : tick this option and set a tag, then the tag can be used as a specified indicator for triggering the schedule item. For example, if the state value of the tag is ON, then the schedule item will be triggered; if state value of the tag is OFF, then the schedule item will not be triggered. You can combine it with [Alarm Service] or [Trigger Service] in your project so that you can design with more flexibility.

# 23.2 【Constant/Weekly】

Time setting can be set as starting from a certain time to a certain time on certain days of a week to perform the specified actions. The period of the schedule is a week.

For example, after we add a schedule item, it will invoke [Schedule Time Setting Dialog].

Select [Constant] in [Schedule Type], select [Weekly] in [Data Type]. We can tick the option [Use end time], [Auto run when power on] and [Use Enable Bit].

We must set the start time and end time in time setting.

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Since we selected the schedule type/data type 【Constant/Weekly】, we can tick any certain days from 【Sunday】 to 【Saturday】 as in time setting. Then set the start time as a certain hour, minute, second using drop-down menu; if you have also ticked [Use end time], then you must set the end time as a certain hour, minute, second.

Schedule Time Setting Dialog
Schedule Type  Constant  Dynamic
Date Type <ul> <li>Weekly</li> <li>Individually</li> <li>Specified</li> </ul>
Use end time.
Auto run when power on.
Use Enable Bit Tag1
Time Setting
Start Time
Sunday V Monday V Tuesday V Wednesday
🖉 Thursday 🖉 Friday 🔲 Saturday
8
End Time
17 ‡ : 3þ ‡ : 0 ‡
OK Cancel

After the setting is completed, press [OK], then it will add the set contents into the dialog for schedule service.

🕑 Dialog										×
Schedule Item     Filter       Add     Delete       Q     Key Word										
ID	Name	Time Type	Start Day	Start Time	Start Action	End Day	End Time	End Action	Enable by Bit	Auto Run when Po
1 0	Schedule	Constant	Monday, Tue	08:30:00			17:30:00		Tag1	Enable
									C	OK Cancel

Next, we can modify the [Name] of the schedule item and then click [Start Action] and [End Action] to set the specified actions.

Start Time	Start Action	End Day	End Time	End Action	Enable by Bit
08:30:00			17:30:00		Tag1
	-				

Please refer to chapter 6 [Action Button] in this manual for how to set [Action].

# 23.3 [Constant/Individually]

Time setting can be set as starting from a certain time in a certain [Day] in a week to a certain time in a certain [Day] in a week for the specified action to be performed. The period for the schedule item is a week.

For example, after we add a schedule item, it will invoke a [Schedule Time Setting Dialog].

Select [Constant] in [Schedule Type], select [Individually] in [Data Type]. We can tick [Use end time], [Auto run when power on] and [Use Enable Bit].

We must set the start time and end time in time setting.

Since we selected the schedule type/data type of [Constant/Individually], we can set the start time as a certain hour, minute, second on a certain [Day] in week in the drop-down menu to perform the specified actions. If you have also ticked [Use end time], then you must set the end time as a certain hour, minute, second on a certain [Day] in a week to perform the specified actions for end time

Schedule Type  Constant  Dynamic Date Type  Weekly  Individually  Specified
Date Type  Weekly  Individually  Specified
I lice and time
I Ose end ume.
Auto run when power on.
✓ Use Enable Bit Tag1 -
Time Setting
Start Time
Monday ~
End Time
Monday -
After 0 day
OK Cancel

### 23.4 [Constant/Specified]

Time setting can be set as starting from start time to end time on a certain date during January to December to perform the specified actions. The period for the schedule item is a year.

For example, after we add a schedule item, it will invoke a [Schedule Time Setting Dialog].

Select [Constant] in [Schedule Type] and select [Specified] in [Data Type]. We can tick [Use end time], [Auto run when power on] and [Use Enable Bit].

We must set the start time and end time in time setting.

Since we selected the schedule type/data type [Constant/Specified], we can set the start time as a certain hour, minute, second on a certain [Day] in a certain [Month] to perform the specified actions. If you have also ticked [Use end time], then you must set the end time as a certain hour, minute, second to perform the specified actions for end time.

It can be seen in the figure below.

Schedule Time Setting Dialog						
Schedule Type 💿 Constant 🔘 Dynamic						
Date Type  Weekly  Individually  Specified						
✓ Use end time.						
Auto run when power on.						
Use Enable Bit Tag1						
☐ Time Setting						
Start Time						
Month: January 🔽 Date: 1 🔽						
End Time						
OK Cancel						

After the setting is completed, press [OK] and then all the set contents will be added to the dialog for schedule service.

Dialog     Schedule Item       Add     Delete       Q     Key Word										
ID	Name	Time Type	Start Day	Start Time	Start Action	End Day	End Time	End Action	Enable by Bit	Auto Run when Power Or
1 0	Schedule	Constant	January 1st	10:00:00			12:00:00		Tag1	Enable
	1	1		1	1				-	
										OK Cancel

# 23.5 [Dynamic/Weekly]

Dynamic means that it can be adjusted on PLC or HMI at any time. Time setting is specified in the state value of the tag. Each corresponding tag is specified with a start time (day, hour, minute, second) and an end time (day, hour, minute, second). Similarly, you must also specify the actions to be performed, respectively.

For example, after we add a schedule item, it will invoke a [Schedule Time Setting Dialog].

Select [Dynamic] in [Schedule Type], select [Weekly] in [Data Type]. We can tick [Use end time], [Auto run when power on] and [Use Enable Bit].

We must set the start time and end time in time setting.

Since we selected the schedule type/data type 【Dynamic/Weekly】, we must input the appropriate tag based on the field.

a. [Status] : display the state for the dynamic setting of the schedule item.

Dynamic	State Value
setting_State	
State value will	Schedule item is not being
display as 0	triggered.
State value will	Successfully read the
display as 1	dynamic address
State value will	Fail to read the dynamic
display as 2	address
State value will	Time or date read is invalid
display as 3	

- b. [Start Time (Day 1~7)] : set the start time (day) of the schedule item. When the state value 1 of the corresponding tag represents Monday; the state value 7 represents Sunday.
- c. [Start Time (Hour)] : set the start time (hour) of the schedule item, which is within the range 0-23.
- d. [Start Time (Minute)]: set the start time (minute) of the schedule item, which is within the range 0-59.
- e. [Start Time (Second)] : set the starting time (second) of the schedule item, which is within the range 0-59.
- f. [End Time (Hour)] : set the start time (hour) of the schedule item, which is within the range 0-23.
- g. [End Time (Minute)] : set the start time (minute) of the schedule item, which is within the range 0-59.
- h. [End Time (Second)] : set the start time (second) of the schedule item, which is within the range 0-59  $_{\circ}$

Remark: [End time] cannot be earlier than [Start time]. If the setting is wrong, the state value will display as [3].

<ul> <li>✓ Use end time.</li> <li>✓ Auto run when power on.</li> <li>✓ Use Enable Bit Tag1 </li> <li>✓ Use Enable Bit Tag1 </li> <li>✓ Dynamic Setting</li> <li>Status Status </li> <li>Status Status </li> <li>Start Time(Day 1~7) Start time_day </li> <li>Start Time(Hour) Start time_Hour </li> <li>Start Time(Minute Start time_minutes </li> <li>Start Time(Second) Start time_sec </li> <li>End Time(Minute) End time_minutes </li> <li>End Time(Minute) End time_minutes </li> <li>End Time(Second) End time_sec </li> </ul>	Date Type  Weekly	Individually   Specified	
<ul> <li>✓ Auto run when power on.</li> <li>✓ Use Enable Bit Tag1 </li> <li>✓ Dynamic Setting</li> <li>Status</li> <li>Status</li> <li>Start Time(Day 1~7)</li> <li>Start time_day</li> <li>Start Time(Hour)</li> <li>Start time_Hour</li> <li>Start Time(Second)</li> <li>Start time_Hour</li> <li>End Time(Minute)</li> <li>End time_Hour</li> <li>End Time(Second)</li> <li>End time_minutes</li> <li>End Time(Second)</li> <li>End time_sec</li> </ul>	Use end time.		
✓ Use Enable Bit       Tag1         Dynamic Setting         Status       Status         Start Time(Day 1~7)       Start time_day         Start Time(Hour)       Start time_Hour         Start Time(Minute       Start time_minutes         Start Time(Second)       Start time_Hour         End Time(Hour)       End time_Hour         End Time(Minute)       End time_Minutes         End Time(Minute)       End time_minutes         End Time(Minute)       End time_minutes         End Time(Second)       End time_sec	Auto run when power	on.	
Dynamic Setting         Status         Start Status         Start Time(Day 1~7)         Start Time(Hour)         Start Time(Hour)         Start Time(Hour)         Start Time(Minute         Start Time(Second)         Start Time(Hour)         End Time(Hour)         End Time(Minute)         End Time(Minute)         End Time(Second)	Use Enable Bit Tag	· ·	
StatusStatusStart Time(Day 1~7)Start time_dayStart Time(Hour)Start time_HourStart Time(MinuteStart time_minutesStart Time(Second)Start time_secEnd Time(Hour)End time_HourEnd Time(Minute)End time_minutesEnd Time(Second)End time_secEnd Time(Second)End time_sec	Dynamic Setting		
Start Time(Day 1~7)       Start time_day         Start Time(Hour)       Start time_Hour         Start Time(Minute       Start time_minutes         Start Time(Second)       Start time_sec         End Time(Hour)       End time_Hour         End Time(Minute)       End time_minutes         End Time(Minute)       End time_sec         End Time(Second)       End time_sec	Status	Status	۲
Start Time(Hour)       Start time_Hour         Start Time(Minute       Start time_minutes         Start Time(Second)       Start time_sec         End Time(Hour)       End time_Hour         End Time(Minute)       End time_minutes         End Time(Second)       End time_sec	Start Time(Day 1~7)	Start time_day	۲
Start Time(Minute     Start time_minutes       Start Time(Second)     Start time_sec       End Time(Hour)     End time_Hour       End Time(Minute)     End time_minutes       End Time(Second)     End time_sec	Start Time(Hour)	Start time_Hour	8
Start Time(Second)       Start time_sec       Image: Start time_sec         End Time(Hour)       End time_Hour       Image: Start time_sec         End Time(Minute)       End time_minutes       Image: Start time_sec         End Time(Second)       End time_sec       Image: Start time_sec	Start Time(Minute	Start time_minutes	8
End Time(Hour)       End time_Hour         End Time(Minute)       End time_minutes         End Time(Second)       End time_sec	Start Time(Second)	Start time_sec	0
End Time(Minute)     End time_minutes       End Time(Second)     End time_sec	End Time(Hour)	End time_Hour	0
End Time(Second) End time_sec	End Time(Minute)	End time_minutes	0
	End Time(Second)	End time_sec	0

After the setting is completed, press [OK] and then the set contents will be added to dialog for schedule service.

	Dialog Schedu Add	ile Item	Filter Exact r Q Key	natch Word							×
	ID	Name	Time Type	Start Day	Start Time	Start Action	End Day	End Time	End Action	Enable by Bit	Run when Powe
1	0	Schedule	Dynamic							Tag1	Enable
										C	DK Cancel

# 23.6 [Dynamic/Individually]

The settings for [Dynamic/Individually] is similar to [Dynamic/Weekly]. Please refer to the previous section, we will not describe them here again.

# 23.7 [Dynamic/Specified]

You can specify a certain time to trigger schedule item by PLC or HMI. The time setting can be set as a certain day during January to December or set as a certain day in every month to perform the specified actions.

Schedule Time Setting Dialog	×					
Schedule Type  Constant  Dyna	mic					
Date Type  Weekly  Individually	Specified					
Use end time.						
Auto run when power on.						
✓ Use Enable Bit Tag1	*					
Dynamic Setting						
Status Status	0					
Start Time(Month 1~12, All 13)	Start Time(Month 1~12, Start time_month II 13)					
Start Time(Day 1~31) Start time_day						
Start Time(Hour) Start time	e_Hour 🛛					
Start Time(Minute Start time	e_minutes 🛛 🛛					
Start Time(Second) Start time	e_sec 🛛 🕄					
End Time(Hour) End time	_Hour 🕴					
End Time(Minute) End time	_minutes 🛛 🕄					
End Time(Second) End time	_sec 🛛 😢					
	OK Cancel					



# **iFACE** Designer

# **PROJECT TRANSMISSION**

Version 2.00

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# 24. Project Transmission

Project transmission mainly contains all kinds of settings to be performed when downloading the project to HMI.

Before downloading the project every time, it is strongly recommended to save and compile first to ensure that the downloaded HMI project has the newest design.

### 24.1 Transfer Setting

Click [Transfer Setting] in the item group [Download] under the tab [Project Transmission].



### 24.1.1 Download Function

Download Setting	×					
Download Setting						
Download Function :	Application *					
Transfer Media :	Removable Storage 🔹					
Removable Storage Status						
Advanced Settings C	K Cancel Transfer>>					

Download Function: the selected option will be downloaded and updated.

[Application]: only download the application This option is suitable for updating the settings or screens of projects on HMI.

[Firmware] : software version will correspond to firmware. This option is suitable for upgrading software version as

well as updating the firmware. After the firmware is downloaded, the HMI project must be downloaded again.

[Application w/ Firmware]: update both the application and the firmware. This option is suitable when old projects will be opened and compiled in new software version.

[QT Library] : only N series are required. Update internal QT version and turn on parts of the functions. For example, HMI display the screen with 90 degrees turn, VNC remote monitoring, etc.

#### 24.1.2 Transfer Media – Removable Storage

【Removable Storage】 is the external storage device that PC connected to. For example, USB disk/SD card.

Download Setting	×					
Download Setting						
Download Function :	Application w/ Firmware *					
Transfer Media :	Removable Storage 💦 📩					
Removable Storage Status						
[G:] 7664 MB						
Advanced Settings C	K Cancel Transfer>>					

a. Press [Transfer >>] to edit the project \*.KPC or convert and download the firmware \*.FMW based on selection in download function. Users can select the drive code of the storage and set the application name. (It is recommended to name the application in English, otherwise it will show garbled text)

Transfer	
Press [Start] to proceed. Download Application with Firmware To Removable Storage	G: (7664MB) APP Name DEMO
0% START	OK Cancel

b. Insert the USB disk that stored the transferred application to HMI USB Host port as shown in the figure below.



c. Switch to HMI System Menu and perform file transfer.

Run Applicati Settings © COM Port  © Ethermet © Backlight  © System Stat © COM Port  © System Stat	cation net File Transfer v Calibration Status Miscellaneous Enable USB Device Transfer
× Cancel File Transfer OK ✓ Application Firmware	Select the firmware or application to be updated
	Select the source directory of the updated data (1) USB disk (2) SD card (3) FTP
X Cancel       Select an application to copy to HMI       OK ✓         Image: DEWO.kpc       Image: Dewo.kpc       Image: Dewo.kpc         Image: Dewo.kpc       Image: Dewo.kpc       Image: Dewo.kpc	Select the application to be loaded to HMI on the screen. After completed, you can click the application and run it.

### 24.1.3 Transfer Media – Ethernet 1-1

a. Set the corresponding IP based on the IP of network HMI and transfer the updated application or firmware to it.

	Run Application		Click Ethernet on BIOS screen.
Settings			
COM Port	Ethermet	File Transfer	
P Backlight	📮 Display	Calibration	Communication: set as
C RTC	System Status	Second Miscellaneous	enabled to use the internet
Communication	Disable	ble USB Device Transfer	
IP Address	192.168.0.133		Connect to the internet to
Gateway	192.168.0.1		upload or download the
Netmask	255.255.255.0		application, set the
Port	800		IP/gateway

b. Select Ethernet 1-1 in transfer media. Enter the IP address of HMI (In this example: 192.168.000.133) and press [Add]. It can be seen in the following figure.

ransfer Medi	a :	Ethernet 1	I-1
Ethernet Add	ress		
IP Address :	192.168.0	00.133	]
Port 60681 Custom po			Custom por
Ad	d		Remove
IP	Port		

176

c. Start the transfer: press 【Transfer >>】, it will start searching for the previously set IP address of HMI and connect to the internet.

Adapters							
IP	Mask	Gateway	MAC			Гуре	Desc
192.168.0.85	255.255.255.0	0.0.0.0	B8-70-	F4-AF-A7-	7F E	Ethernet	Broa
4							
Use this adar	ter 192 168 0 8	35 - Us	e this po	ort 60680		Custor	m Port
Pre-configure	d HMI address-						
IP	Port						
IP	Port						
IP 192.168.000	Port 133 60681						
IP 192.168.000	Port 133 60681		_				
IP 192.168.000	Port 133 60681	_					
IP 192.168.000	Port 133 60681						
IP 192.168.000	Port 133 60681						
IP 192.168.000	Port 133 60681						
IP 192.168.000	Port 133 60681						
IP 192.168.000	Port 133 60681					1	
IP 192.168.000 Query Pre-co Supported	Port 133 60681 nfigured HMIs	MAC		BIOS Vers	ion	FW Ve	rsion
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192.168.0.133	MAC 3 98-5d-a	d-3	BIOS Vers	ion	FW Ve	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192.168.0.133	MAC 3 98-5d-a	d-3	BIOS Vers	ion	FW Ve	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192 168 0 13:	MAC 3 98-5d-a	d-3	BIOS Vers	ion	FW Ve	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192 168.0.13:	MAC 3 98-5d-a	d-3	BIOS Vers	ion	FW Ve 0000.04	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192 168.0.13:	MAC 3 98-5d-a	d-3	BIOS Vers 2000.0001	ion	FW Ve 0000.04	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs IP 192.168.0.133	MAC 3 98-5d-a	d-3	BIOS Vers 0000.0001	ion	FW Ve 0000.04	rsion 680
IP 192.168.000 Query Pre-co Supported Yes	Port 133 60681 nfigured HMIs	MAC 3 98-5d-a	d-3	BIOS Vers 0000.0001	ion	FW Ve	rsion 680

d. After searching and detecting, it will start copying the firmware and the application to HMI.

(	Transfer - Firmware(C:/NOVAKON/iFACE 1.6.70/firmware/Release1670.fmw)							
	Task Queue			Running / Done	List			
	IP	MAC	Retry	IP	MAC	Progress	Status	
				192.168.0.133	98-5d-ad-3c-d4-ff	26%	Transfer	
	•		►					
							Clo	se
ĮL								

Remark: after the firmware is being downloaded, you need to wait until HMI automatically restart to continue downloading the application.

### 24.1.4 Transfer Media – USB Device

a. Use the transmission cable for USB device to connect the USB port on personal computer to HMI USB device port.



b. Switch to HMI System Menu to perform file transfer.



c. Please select [USB Device] in transfer media.

Download Setting		X
Download Setting		
Download Function :	Application w/ Firmware	*
Transfer Media :	USB Device	<b>•</b>

d. Start the transfer: download the firmware and the application to HMI through transmission cable for USB device. Wait until it is completed.

Transfer	Transfer
Press [Start] to proceed. Download Application with Firmware Via USB Device	Press Istarty to proceed. Download Application with Firmware Via USB Device Begin packaging file Packaging file complete! Begin USBD transfer Transfering firmware waiting for done Transfering project Done USBD transfer
0% START	100% Close
### 24.1.5 Transfer Media – Ethernet Probe

Know the number of HMIs connected to the current local network and then download the firmware and application to all HMI directly through Ethernet probe.

a. Select [Ethernet Probe] in transfer media.

Download Setting	×
Download Setting	
Download Function :	Application w/ Firmware
Transfer Media :	Ethernet Probe
Advanced Settings	OK Cancel Transfer>>

b. It can be seen in the figure below: the system will automatically search for IP address of the PC (In this example: 192.168.0.85). Then it will search for HMIs connected to the same local network (In this example: 192.168.0.XXX and it has found 1 of them).

ſ	Probing				X •
	Adapters				
	IP	Mask	Gateway	MAC	Type Descri
	192.168.0.85	255.255.255.0	0.0.0.0	B8-70-F4-AF-A7-7F	Ethernet Broad
	4				
\ ¥	Use this adapt	er: 192 168 0	85 × Us	e this port: 60680	Custom Port
	Descrit Desk	- 100-			
	Dynamic Prob	e HMIs		1	
	Supported	IP	MAC	BIOS Versio	n FW Version
	res	192.168.0.13	3 98-50-8	a-3 0000.0001	0000.0680
					<b>&gt;</b>
			Probir	ng	7 T
			Auto start	after probe if HMI av	ailable Start >>

c. If tick the option [Auto start after probe if HMI available], then the system will automatically download the firmware and the application; if untick the option, it will not download automatically after the detection. But you can assign IP to download manually.

## 24.1.6 Transfer Media – Local Disk

You can save the firmware or application to the specified directory of local disk. The advantage of this option other than convenient management and use is that you can download to the disk and use directly and then sent the files to clients through Email or other methods.



a. Select [Local Disk] in transfer media.

b. Specify the directory of the local disk and application name.



## 24.2 File Protection

File protection can provide users to protect their projects by password. Every project supports two kinds of protection measures provided to users. By

clicking the iF icon on the upper-left corner [ 1 ], you can find the item [ File Protection ].



#### 24.2.1 Project File Password

Project file password setting is a protection mechanism that will invoke a dialog for input password when opening the project. After the file protection setting is saved, it will invoke a dialog for input password when the project is being opened once again.



A. [Use Protection] : enable project file password protection. It will invoke a

dialog for input password when opening the project next time. If the password is entered correctly, the project will be opened.

Dinput Password		×
	ОК	Cancel

- **B. [**Password **]** : Enter the password to be set. Password will have max. 24 characters, including uppercase and lowercase characters (uppercase and lowercase characters are considered as different character), numbers, special characters.
- **C.** [Show password] : show the entered password. If untick the option, then password will be shown as asterisk.

## 24.2.2 Compile File Password

Compile file password setting is a protection mechanism that will invoke a dialog for input password when uploading HMI application. After the compile file password setting is saved, it will invoke a dialog for input password when you wish to upload the application.



**D. [**Use Protection **]** : enable compile file password protection. It will invoke a dialog for input password when uploading the application through Ethernet or USB device.

If the application will be uploaded to external devices through 【File Transfer】, then HMI will invoke a numerical panel for input password.



If the password is entered correctly, then you can upload the application; if the password is wrong, then it is required to re-enter the correct password to upload the application.

- E. [Password] : Enter the password to be set. Password has max. 10 digits.
- **F.** [Show password] : show the entered password. If untick the option, then the password will be shown as asterisk.
- **G.** [Limit No. for retries] : set the allowed number of retries when the entered password is wrong. If you cannot enter the correct password within the limit number, then it will cancel the upload until the upload program runs next time.

Remark: After the password is set, you need to save the project. For 【Compile File Password】, you must compile and download to HMI for it to take effect.

## 24.2.3 Compile – Restore Information

When the application is compiled for verification, the option [Including restored information] will appear at bottom-left of the dialog. If untick the option, then it will not have an effect when uploading the application later.



## 24.3 Upload Application

Application can be uploaded by using iFACE Designer or through external disk on HMI.

## 24.3.1 Upload Application by iFace Designer

Upload application invokes similar dialog as download. The application can be obtained from three kinds of sources. After uploading, it will perform restore action for users directly.

Click [Application] in the item group [Upload] under the tab [Project Transmission].



## 24.3.2 Upload and Restore by Ethernet

When selecting Ethernet as the project source to transfer HMI application, it is required to enter the IP of HMI. After pressing 【Next】, it will ask you to specify the directory for the application and the application name. If you don't want to enter, you can use the default directory and name.

Upload X	
Select Media Specify source media which contains your project.	R Restore Location Specify which file you wish to restore.
Via Ethernet     IP: 192.168.000.133     Via USB Device	D:/ethapp.kpr Browse
From Compiled Project	
< Back Next > Cancel	< Back Next > Cancel

After pressing [Next], the system will start uploading. If [Compile File Password] in [File Protection] has been set for the application, it will invoke a dialog for input password when uploading the application. If not been set, then wait for the upload and restore to finish.

Query           Adapters           IP         Mask         Gateway         MAC           192.168.0.85         255.255.0         0.0.0         B8-70-F4-           4         III         IIII         Use this adapter:         192.168.0.85         Vise this port           Pre-configured HMI address         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	AF-A7-7F Ethernet Broadd	Upload     Processing Project Restoration     Ready to restore project.     Contacting HMI     Connected.     Password required	X OK Cancel
IP Port 192.168.000.133.60681	Password ] has been set	Start Cance	Uplood
Guery Pre-configured HMIs           Supported         IP         MAC         BIC           Yes         192.168.0.133.98-5d-ad-3         000	IS Version FW Version 0.0001 0000.0680		Processing Project Restoration Ready to restore project.
	f HM available Start >	tion/Compile File Password 】 set	Exit Hild Software Disconnected Begin Restoring Project Destination: D/aak ppr Writing file Restoring Project Complete!

After uploading is finished, you can find the restored application at the specified directory.

## 24.3.3 Upload and Restore by USB Device

When selecting USB device as project source to transfer HMI application, it is required to download the application through USB device based on method introduced previously. First, click the button 【Enable USB Device Transfer】 on HMI System Menu. Then wait until it stays on the waiting screen of 【Enable Transfer】.

After pressing [Next], it will ask you to specify the directory and application name. If you don't want to enter, you can use the default directory and name.

## Project Transmission

🕡 Upload	×	ad Example 2
Select Media Specify source media which contains your project.	4	re Location hich file you wish to restore.
© Via Ethernet		D:/demo/usbdapp.kpr Browse
Via USB Device		
From Compiled Project		Press [Browse] to assign the path and name to restore the project
< Back Next > Cancel		< Back Next > Cancel

After pressing [Next], the system will start uploading. If [Compile File Password] in [File Protection] has been set for the application, it will invoke a dialog for input password when uploading the application. If not been set, then wait for the upload and restore to finish.

## 24.3.4 Restore from Application in Disk

When selecting compiled project as project source, the project source can come from [Upload File Transfer] or [Local Disk].

You can also upload the application by [File Transfer] and the method is described as follows:



When using this method to transfer the application to an external device, it will save the application with the name application .kpc in root directory by default.

Upload	Choose source KPC
Select Media	● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●
Specify source media which contains your project.	Hald 曾理 ◆ 新潮資料支
<ul> <li>Via Ethernet</li> <li>Via USB Device</li> <li>From Compiled Project</li> <li>File: Browse</li> </ul>	▲ 小田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田
< Back Next > Cancel	「 編集名類(N): demo

After selecting [From compiled project] as project source, press [Browse] to specify the directory and application name. After completed, press [Open]. Return to the dialog for project source selection and press [Next] and confirm the file to be restored and its directory. If you do not want to change, you can use the default directory and file name.

Similarly, after pressing [Next], the system will start the restore procedure. If [Compile File Password] in [File Protection] has been set for the application, it will invoke a dialog for input password when uploading the application. If not been set, then wait for the upload and restore to finish.



# **iFACE** Designer

## WI-FI APPLICATION

Version 2.00

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## 25. Wi-Fi Application

Wi-Fi (Wi-Fi local network technology) is one of the earliest high-speed network technologies appeared. It is used not only in common electrical product for consumption, but also in applications of industry. IoT also shares data and information during production process through Wi-Fi network mobile communication.

## 25.1 Basic Setting

Before starting to use Wi-Fi, we need to insert the converter for Wi-Fi to HMI USB host port, then open HMI, go to HMI System Menu and press [Miscellaneous] to misc. Setting for Wi-Fi.

				Misc	Setting	
			Buzzer	Disable	Enable	
	Run Application		Debug Mode	Run application	Backup log	
ngs COM Port	Ethermet	File Transfer	WiFi Mode	Station	Ар	
Backlight	Display	Calibration	WiFi Setting	Station	AP	
D RTC	③ System Status	Contraction Miscellaneous				

## 25.2 WIFI Setting-Station

[Wi-Fi Mode] : you can select [Station] or [AP] mode. [Station] mode is the workstation mode. It can connect to AP itself but does not allow other Wi-Fi device to connect. [AP] mode allows other Wi-Fi device to connect for providing data communication.

#### Remark:

- (1) Activate Wi-Fi (Station & AP) function requires 40 seconds, please wait patiently.
- (2) After shifting between Station or AP modes, system will request to save the setting and reboot HMI.

After entering the setting screen, it will invoke the dialog as in the following figure. The system will automatically search for the current Wi-Fi network name that are available to connect (SSID : Service Set Identifier).

<u>F</u> ile <u>N</u> etwork <u>H</u> elp		
Current WiFi	Select WiFi	
Network:	SSID $\nabla$ signal	
0: Default-WPA	zettaplus_g	61 dBm
Status:	hms_test	75 dBm
Scanning	for-ibase	87 dBm
IP address:	dlink	83 dBm
	ZyXEL61	77 dBm
	Novakon1	55 dBr
	N56U	71 dBm
	IB_W	_73 dBm
	Guest4F	65 dBm
	DIRECT-P	_73 dBm
	D-Link_DI	_65 dBm
		75 dBm
	Scan Select	
	Apply Close	Advanced

a. First, click on the SSID to be connected. We use [Novakon1] as example here. After clicking [Novakon1] on the screen, press [Select] to go to the detail setting of [Novakon1].

If you cannot find the desired network name to connect, you can press [Scan] to search once again.

🔞 Novakor	n1	<u>?</u> ×
Basic	Advanced WEP keys Optional	
SSID	Novakon1	
PSK	******	
	WPS Add Remove Cancel	

b. Enter the password of Wi-Fi network in the field [PSK].

© Novakon1	<u>?</u> ×
Basic Advacced WEP keys Optional	
Authentication WPA2-Personal (PSK)	_
Encryption TKIP	
EAP method MD5	<b>V</b>
Identity	-
Password	- 11
CA certificate	- 11
WPS Add Remove Cancel	

- c. The default encryption is 【TKIP】. If modification is required, you can go to 【Advanced】 to adjust advanced settings. After the setting is completed, press 【Add】 and save the set parameters in the system.
- d. Press [Cancel] to exit this window.

Eile Network Help	Eile Network Help
Current WiFi	Current WiFi
Status:     Signal       Completed (station)     Yel       Padress:     Solution       Sending discover     Yel       Variable     Yel       Use of the sending discover     Yel       Status:     Yel       Use of the sending discover     Yel       Yel     Yel       Yel	Status:         Signal           Status:         2: Novakon1           Status:         2: Novakon1           Status:         91.0 Br           Completed (station)         93.0 Br           IP address:         79.0 Br           192.168.90.93         77.0 Br           Novakon1         77.0 Br           N56U         77.0 Br           New 75.0 Br         73.0 Br           D-Link_DI         71.0 Br
Scan Select Advanced	Scan Select B

- e. Start network connection: after connected, the current connected IP address will be shown on the screen.
- f. Click 【Help】→ 【Change Mode】→ 【Advanced...】→ 【Current Status】 to see the state of the current connection.

<u>F</u> ile <u>N</u> etwork	<u>H</u> elp		
Current WiFi	<u>C</u> ontents		Select V
Network:	Index		
0: Default-W	<u>A</u> bout	╘┙╽	SSID
Status	Change Mode 🕨	Sim	ple
Scanning	~~~~~	Adv	anced

## Wi-Fi Application

<u>File N</u> etwork <u>H</u> elp		<u>File Network H</u> elp	
Adapter:	ra0	Adapter:	ra0 💌
Network:	2: Novakon1	Network:	2: Novakon1
Current Status Manage Networks WPS IP		Current Status   Manage Networks   WPS   IP	
		IP address: 192.168.90.93	
Status:	Completed (station)	Gateway: 192.168.90.1	Set
Last message:	- Connection to c8:be:19:58:1e:e0 comple		
Authentication:	WPA2-PSK		
Encryption:	CCMP + TKIP		
SSID:	Novakonl		
BSSID:	c8:be:19:58:1e:e0		
			ß
Connect Disconnect	Scan Get IP		
· · · · · · · · · · · · · · · · · · ·			

g. After pressing [Get IP], you can switch to the tab IP tab to view [IP address] and [Gateway].



h. Wi-Fi setting is done. When being powered on next time, it will use the set parameters to connect automatically. We can go to system manager to perform PING command and check whether it can make normal communication or download a simple application.

Remark: If you want to use Wi-Fi to download application, please untick the option [Ethernet] communication in HMI System Menu.

## 25.3 Wi-Fi Setting-AP

Other than [Station] mode, [AP] mode is also being provided. [AP] mode allows other Wi-Fi devices to connect and provide data communication.

Remark:

- (1) Activate Wi-Fi (Station & AP) function requires 40 seconds, please wait patiently.
- (2) After shifting between Station or AP modes, system will request to save the setting and reboot HMI.

Configuration Basic Advanced Status			
SSID	default123		
KEY	12345678		
Gateway	192.168.10.1		
D			
Connect	Disconnect	Save	Close

a. Go to HMI System Menu. Click 【AP】 mode in 【Wi-Fi Mode】 to go to AP setting screen. We can set SSID (network name) and KEY (network password) based on our custom. In this example, we will use the default value to test (SSID: 【default123】; KEY: 【12345678】).

Configuration Basic Advanced	Status	
Starting IP Address	s 192.168.10.20	
DNS	8.8.8	
Router Subnet	192.168.10.1           255.255.255.0	
Lease time (Day) AuthMode	10 WPAPSK	▼ ▼
EncrypType Channel	AES 11	-
Connect Disconnec	ect Save	Close

b. [Advanced] is the advanced setting of AP. If the users are not familiar with inner network setting, inappropriate modification can lead to unable to connect normally.

Configuration Basic Advanced Status	Configuration Basic Advanced Status
Status Using default ip for ra0	Status Using default ip for ra0 WiFi AP stop1 WiFi AP starting
Connect Disconnect Close	AP Connect Disconnect Close

c. Press [Connect], then it will start the connection; press [Disconnect] to stop the connection.

Remark: After the setting completes, please press [Save] and [Close]. A popup window will be invoked, please press [Ok] then the system will reboot the HMI.

目前連線到:	÷, ^
default123 網際網路存取	
無線網路連線	^
default123 已經調	≜線 ,∭
Novakon1	الدو
winson	llee
Guest4F	100
N56U	lle.
zettaplus_g	-10
D-Link_DIR-600M	341
SCUS	al -
開啟網路和共用中心	
() In 🖞 🛠 🗗 🔺 ()	上午 11:21 2018/8/15

d. Detect the Wi-Fi network from computer. It detects 【default123】 and you can enter the password: 【12345678】 to connect normally.

## 25.4 DHCP Setting

The system supports DHCP (obtain IP automatically) function. Its advantage is that it can avoid to accidentally set the same IP when setting IP causing connection problems to appear, which can reduce the trouble for network manager.

× Cancel	Ethernet Sett	ing	ОК ✓
_	Distle		
Communication	Disable	Enable	
IP Address	192.168.0.8	88	
Gateway	192.168.90	.1	
Netmask	255.255.255	5.0	
Port	800		
DHCP	Disable	Enable	

a. To use DHCP, go to BIOS screen first. After pressing 【Ethernet】, go to Ethernet Setting. IP address will display the ex-factory default value and DHCP setting is 【Disable】.

× Cancel	Ethernet Se	etting	OK √
Communication	Disable	Enable	
IP Address	192.168	3.0.88	
Gateway	192.168	3.90.1	
Netmask	255.255	.255.0	
Port	80	)	
DHCP	Disable	Enable	

b. Set [DHCP] as [Enable]. Press [OK] after plugging in the internet cable. Return to HMI System Menu.

× Cancel	Ethernet	Setting	ОК√
Communication	Disable	Enable	
IP Address			
Gateway	192.1	68.90.1	
Netmask	255.2	55.255.0	
Port	8	300	
DHCP	Disable	Enable	

c. After pressing [Ethernet], it will go to Ethernet setting screen. Currently, IP address is blank.

ancel	Ethernet S	etting	OK
Communication	Disable	Enable	
IP Address	192.16	3.90.91	
Gateway	192.16	8.90.1	]
Netmask	255.255.2		
Port	800		
DHCP	Disable	Enable	

d. After pressing [Cancel] to exit, press [Ethernet] to go to Ethernet setting screen. At this time, it has obtained IP address automatically.



# **iFACE** Designer

## **REST API APPLICATION**

Version 2.00

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## 26. Rest API Application

Rest API means that information undergoes state transfer using a certain format (usually JSON format) on the network. HMI sends requests by JSON format through Rest API and receives the response from the cloud to satisfy the requirement of IoT application.

## 26.1 Rest API Setting



e. To activate Rest API setting, please click the tab  $[Setting] \rightarrow [Outer Device Setting]$ .

Remote Device Setting				×	
Category ModBus Settings	Rest API Fun	Edit De	lete		
	Name	Url Number	Method	Data	
	<ul> <li>Backup Fur</li> <li>Backup log</li> <li>Use Tag to</li> <li>Backup log pa</li> </ul>	nction g stored for verify ath	30 days Input Tag Iocal	K Cancel	

f. After selecting 【REST API Settings】, tick 【REST API Function】.

REST API work	×	
A Work Name Rest	Work1	
B Url Settings Number of Urls 5		
Url 1	Input Tag	
Url 2	Input Tag	
Url 3	Input Tag	
Url 4	Input Tag	
Url 5	Input Tag	
HTTP Method G	ET ·	
Data C	ontrols	
Import Tag list	Start Input	
Export Tag list	End Input	
	OK Cancel	

- g. After pressing [Add], you will invoke a [REST API Work] dialog.
- A. [Work Name] : you can define the Work name. The default is set as
   [RestWork1].
- B. [URL Setting] : decide the quantity of used URL first, 5 at most. Then assign the tag used by URL1 URL5 based on their used quantity. These tags are required to be strings. When performing actual operation, it will read the content of these tags as the target IP to send data.

Remark: [http://] or [https://] in front of the IP address cannot be omitted.

For example, we create 3 tags [Tag1] - [Tag3] first and specify the addresses [@10], [@20], [@30], respectively. Their types are all set as [String] with length 20. It is shown in the figure below.

T	ags System	Information Tags	n Tags System Control Tags Recipe Tags				
	Tag Name	Connector	Туре	Address	Comment		
1	Tag1	InternalMemory	Ascii	@10			
2	Tag2	InternalMemory	Ascii	@20			
3	Tag3	InternalMemory	Ascii	@30			

Next, open 【REST API Work】 dialog to set URL quantity as 3 and specify the tags used by URL1 - URL3 as Tag1 - Tag3, respectively. It can be seen in the figure below.

	REST API work	×						
	Work Name Rest	Work Name RestWork1						
	Url Settings							
	Number of Urls	3 ‡						
	Url 1	Tag1 🕴						
	Url 2	Tag2						
	Url 3	Tag3 🙁						
	Url 4	Input Tag						
	Url 5	Input Tag						
C	HTTP Method P	OST 🗾						
	Data Ta	ags 🔹						
	Import Tag list	Resend Time						
		Start Input						
	Export Tag list	End Input						
		OK Cancel						

C. [HTTP Method] : specify send data action for this job. It can be set as
 [GET], [POST], [PUT].

When [HTTP Method] is selected as [POST] or [PUT], [Sending data] can be set as the function [Tags] and [Resend].

- i. **[**Tags**]** : Pack the specific tag and its state value as JSON string and send, then read the reply contents. Next, it will analyze the reply contents and write the values contained into the tag. In addition, if it has turned on backup function, then the data send every time will produce log automatically to perform backup.
- ii. [Resend] : read the backup log as described above and pack the assigned time log as JSON array and send. It will not perform analysis or apply action to the replied contents.
- **D. [**Export Tag List **]** : Export the tag list of that job. If the tag list has not been set previously, then it will export the default text file.

For example, after pressing [Export Tag List], the file dialog will be invoked. After specifying the desired directory, enter the file name (for example: workTag1.TXT) and press save to complete the export action.

You can use notebook or excel to open the files. After opening, it will list the fields, Tag ID, Tag Name and Send.

[Tag ID] : id number of the tag. Please do not change this column.

[Tag Name] : tag name. please do not change this column.

[Send] : whether this tag is sent. If true, then it will make the delivery; if false, then it will not make the delivery.

- ── workTag1.txt 記事本 檔案(F) 編輯(E) 格式(O) 檢視(V) 說明(H) ĬTagID TagName Send 1 Tag1 false 2 Tag2 false 3 Tag3 false
- E. [Import Tag List] : import text files for the tag list of that job.

For example, change the [Send] content of [Tag2] in the text file we just exported from [false] to [true] as in the figure below.

work1	ſag1.txt -	記事本	
檔案(F)	編輯(E)	格式(O)	檢視
TagID 1 2 3 	TagNa Tag1 Tag2 Tag3	me Send fals true fals	l se se se

When pressing [Import Tag List], the original file name is opened in file dialog. At this time, the system will make a hint saying that it will cover the previous tag list setting. Select [OK] to complete the importing action.



h. After the setting is completed, press 【OK】, then it will exit the job setting dialog.

Remote Device Setting     Category     ModBus Settings     Rest API Settings	Rest API Functio	n Delet	le	×
	Name	Url Number	Method	Data
	1 RestWork1 3	3	POST	Tags
	<ul> <li>Image: A state of the state of</li></ul>	III DN		
	Backup log sto	ored for	30 days	÷
	O Use Tag to veri	ify	Input Tag	
	Backup log path		local	*
			ОК	Cancel

- i. [Backup Function] can set up data backup time. The default is 30 days; you can also use the tag to assign the number of days for backup. [Backup log path] can be set as [Local end], [USB], [SD Card] based on the requirement.
- j. After the setting is completed, please press [OK].

According to the setting in our example, when performing this work later, it will send Tag2 and its state value.

## 26.2 Actions Related to REST API

Manage the actions related to REST API, including 【Call REST API】 or 【Website Connection Status Check】.

26.2.1 Call REST API

Action List			n Management		? ×
Action Group	Actions		IS	Action Parameters	
Alarm Table Control Ftp Service Code Editor Control Swstem Service Table Control Alarm Heistory Table Control Alarm Service Recipe Service Trend Chart Control Security Service Communication Service PLC Service	Back to BIOS  Call Screen Saver Call REST API Change Project Change Screen Close sub-screen Close sub-screen Run External Process Run External Process Run External Process With link suspended Show File System Dialog Print Screen Print Screen Next Screen Next Screen	Ţ	ai REST API	Parameter 1 REST API Works	Setting RestWork1 ·
call REST API	Run Macro       Set IP.Netmask,Gateway       Set Macro	- Hel Sei Add	Max. 3 actions p lect a REST API work to take action. Action Delete Actions		OK Cancel

You can use any widget or service in previous chapter to call action and open 【Call REST API】 to assign job to be performed based on the requirement of actual case.

## 26.2.2 Website Connection Status Check

Action List		?		n Management			9
Action Group	Actions			1S	A	action Parameters	
Alarm Table Control Ftp Service	Run Macro Set IP,Netmask,Gateway			Vebsite Connection Status Check		Parameter	Setting
Code Editor Control System Service	Set Wifi Set Backlight		Ļ			1 Google Tag 2 Yahoo Tag	Input Tag
Table Control Alarm History Table Control	Set Language Shutdown panel PC					3 Baidu Tag	Input Tag
Alarm Service Recipe Service	Link Suspend					4 Custom URL Tag	Input Tag
Irend Chart Control Security Service Communication Service PLC Service	Website Connection Status Uneck Set Buzzer Set Date & Time Set Day Run Application at Full Screen Set Hour Set Minute Set Month Set Month	=		4► Max. 3 actions	-		mput tag
Help			Help				
website connection test			Set a	a tag that shows the connection state	us wi	ith Google.	
	ОК	Cancel	Add A	ction Delete Actions			OK Can

When opening REST API, you can perform the action [Website Connection Status Check] to make sure that the network has normal communication. Set the tags used

in every item. If the connection is successful, then that tag will return 0; if not successful, then that tag will return 1.

- a. [Google Tag] : use bit tag to return the results of connecting google to the assigned tag.
- b. [Yahoo Tag] : use bit tag to return the results of connecting yahoo to the assigned tag.
- c. 【Baidu Tag】: use bit tag to return the results of connecting baidu to the assigned tag.
- d. [Custom URL Tag] : use string tag to specify self-defined URL.
- e. [Custom Tag] : use bit tag to return the results of connecting self-defined URL to the specified tag.