# How to Create an eLogger HMI and a Schedule-Control Application for a Win-GRAF PAC?

Download FAQ-019 Demo

All Win-GRAF WinCE series PAC support the Schedule-Control function. A single PAC supports a maximum of 10 targets for schedule control. Each target can control three variables – one Boolean, one 32-bit Integer and one Real variable.

- Support a maximum of 10 control Targets.
- Support the scheduling for Normal Days, Holidays, and Special Days.
- Support 15 time periods for each Schedule.
- Support using the local languages.
- Support working with an eLogger HMI.
- Support working with the Win-GRAF softlogic.




## Chapter 1. Download and Install the Software

ICP DAS provides a free Schedule-Control utility that allows the user to quickly and easily complete the schedule settings on a PC or a PAC. This FAQ-019 also provides demo programs for the Schedule-Control utility, Win-GRAF and eLogger HMI. Visit the Win-GRAF FAQ web page to get the demo_faq019_all.zip file which includes this document and all demo programs:
https://www.icpdas.com/en/faq/index.php?kind=273#840 FAQ-019

### Schedule-Control Utility

There is a Schedule-Control utility called **Schedule_in_PC**.exe in the CD:\napdos\Win-GRAF\Tools_Utility\ in the packing box of the Win-GRAF PAC. First, copy this file and the label_name.txt to your PC, and recommended to put it in the same folder with the schedule file, e.g., D:\Schedule-Control\Station1\. Also, there is a Schedule-Control utility called **Schedule_in_PAC**.exe in the \System_Disk\Win-GRAF\ in the Win-GRAF PAC.



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**Win-GRAF**

Visit the Win-GRAF web page for more information about the software, drivers, and manuals.
https://www.icpdas.com/en/download/index.php?nation=US&kind1=&model=&kw=win-graf

If you are not familiar with the Win-GRAF software, read these chapters in the Win-GRAF User Manual:

- See Chapter 1 to install the Win-GRAF Workbench
- See Chapter 2 to create, edit, and compile the project, and then download it to the Win-GRAF PAC.
- See Chapter 17 for more information about the schedule control.

**eLogger HMI**

Visit the eLogger HMI web page for more information about the software and manuals.
http://www.icpdas.com/en/product/guide+Software+eLogger+eLogger

Refer the Win-GRAF FAQ-018:
How to Use Win-GRAF SoftLogic and eLogger HMI in the Win-GRAF PAC?
See Chapter 2 to know how to install and use the eLogger HMI.
http://www.icpdas.com/web/product/download/software/development_tool/win-graf/document/faq/faq-018.pdf

**Introduction of Demo Programs**

After you unzip the **demo_faq019_all.zip** file, the following demo files included in the folder:

1. schedule01.txt
   It is the configuration file of the Schedule-Control utility, and we called Schedule file.

2. W_schedule.zip
   It is a Win-GRAF project which used to conduct the scheduling control and release the variables for an eLogger HMI or other PAC to read data.

3. eL-Schedule.wez (ViewPAC: 640 * 480)
   It is an eLogger project which used to design the eLogger HMI page and used to read data (i.e., the scheduling data and PAC time) from the Win-GRAF PAC.



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# Chapter 2. Introduction of the Schedule Control Utility

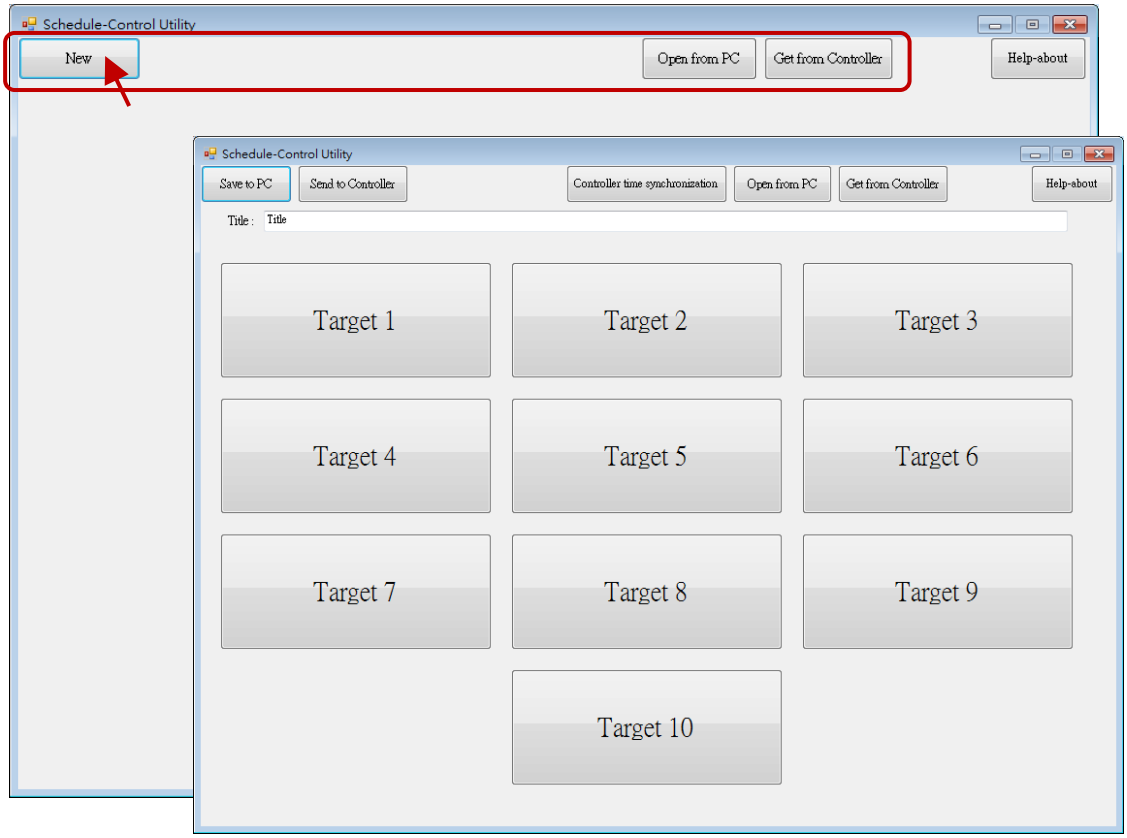
## 2.1. Configure the Target

**Note:** If you are familiar with this software, go to Chapter 3 for demo programs.

Execute the Schedule-Control utility, and click the "New" button to create a new scheduling. As you can see in the figure, there are 10 buttons named Target 1 to Target 10 by default. Each Target can set as different seasons for scheduling, and any configured Target marked with “*” on the button.

Apart from creating a new scheduling, the user can modify an existing scheduling file from a PC or a PAC.

- New: Create a file.
- Open from PC: Open an existing scheduling file from the PC.
- Get from Controller: Load an existing scheduling file from the PAC after entering its IP address and password.




**Change the label name to meet different application needs:**

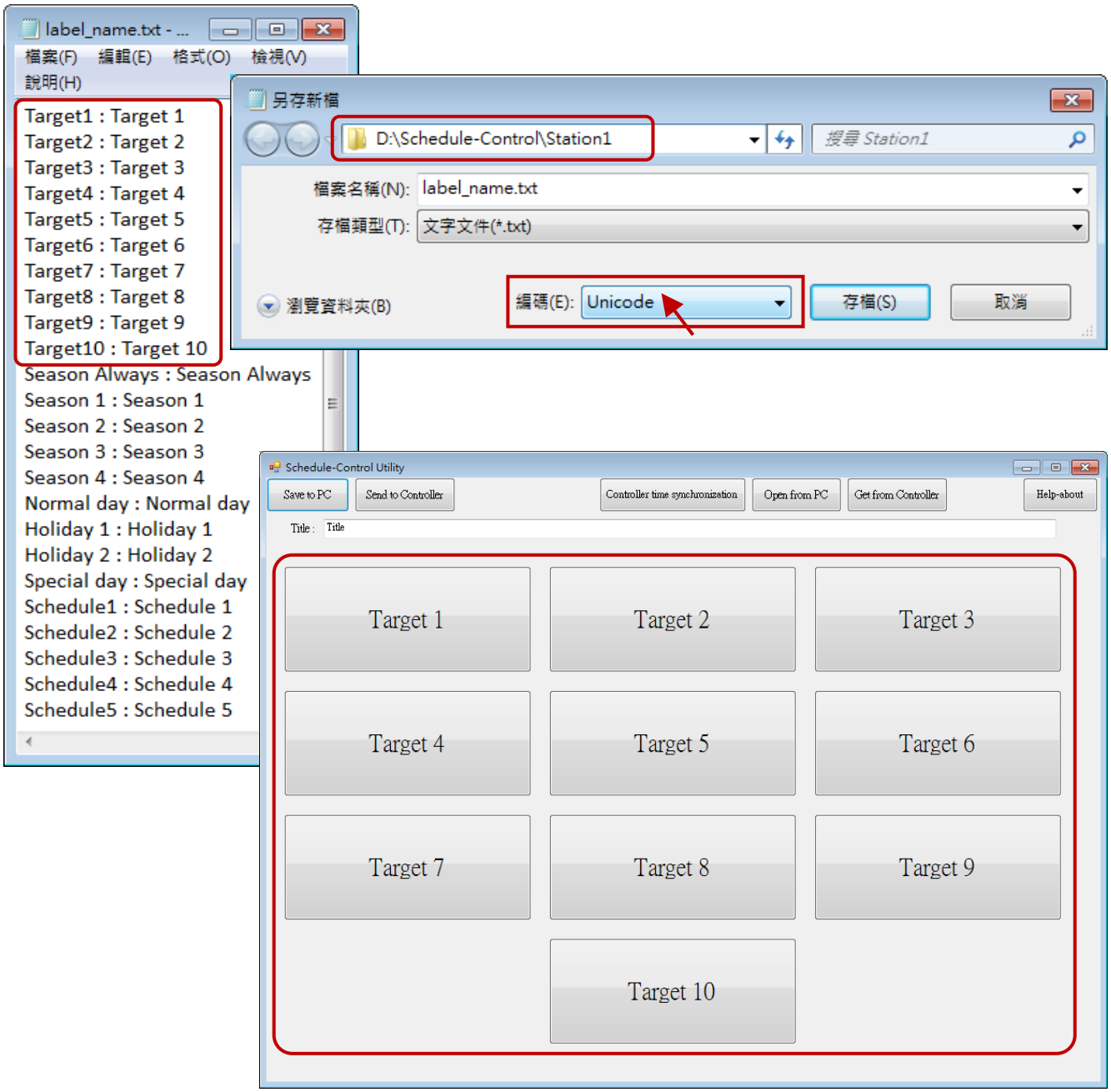
The user can modify the name of the Target, Season, and so on, according to the needs of the application field. Open the Label_Name.txt in the folder that the Schedule_in_**PC**.exe is located (e.g., D:\Schedule-Control\Station1\) and follow instructions as below.



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**Notes for creating the file "Label_Name.txt":**

1. If this file does not exist, the target shows the default name (e.g., Target 1, Target 2).
2. In this file, change the target name (e.g., **" Factory "**, the prefix/suffix of spaces will be erased.) or the name of other items (e.g., Season, Normal day, Holiday, Schedule, etc.) after the colon (" : ").
3. The user can create and edit it by using MS Notepad or other editors, but must select the "Unicode" format when saving it.
4. On the PAC, copy this file into the same folder with the Schedule_in_**PAC**.exe, i.e., \System_Disk\ Win-GRAF\.

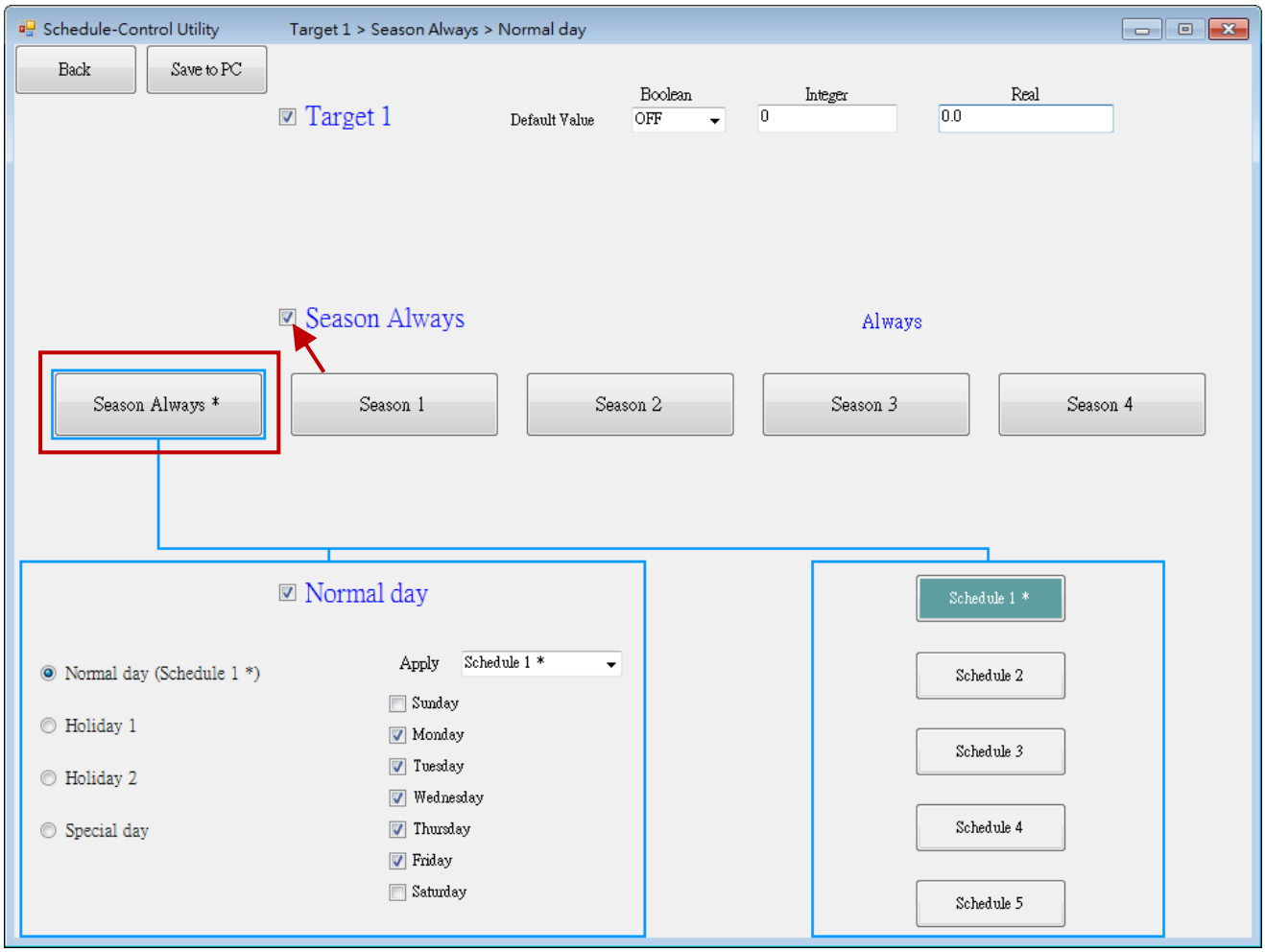





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## 2.2. Configure the Season

Each “Target” (1 to 10) includes the “Season Always”, “Season 1”, “Season 2”, “Season 3” and “Season 4” setting items. It is recommended to check "Season Always" that means to enable the year-round schedule.




**Note:** See Chapter 17 Schedule Control of the Win-GRAF user manual for more details about the settings.

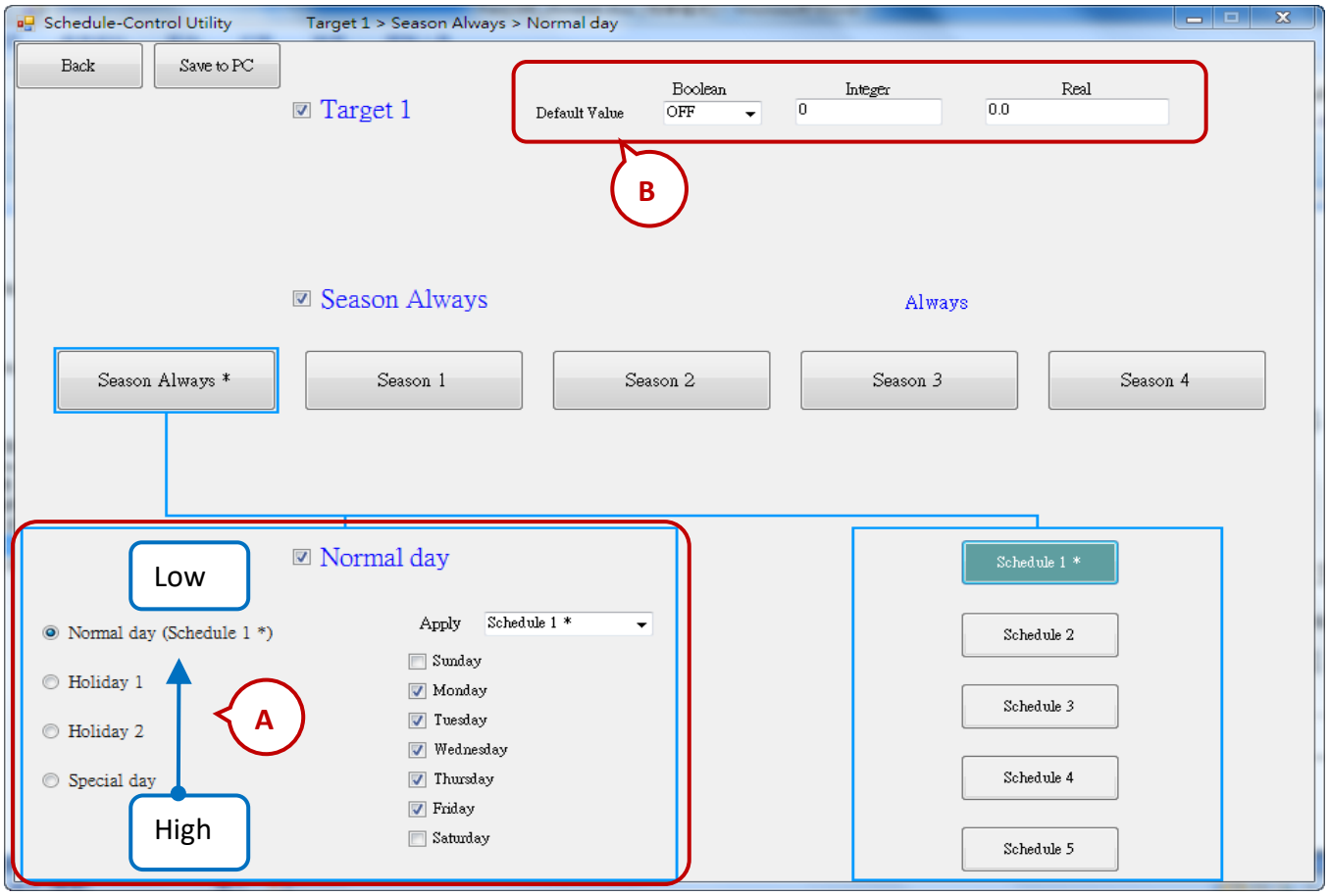


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### 2.2.1. Configure the Normal Day, Holiday, or Special Day

The Season setting can be set to the Normal day, Holiday 1, Holiday 2 or Special day. When enabling the setting, users must choose a Schedule number (1 to 5) to apply the time settings.

| | |
|---|---|
| **Normal day** | The normal days are Monday to Friday. |
| **Holiday 1** | Normally set to Saturday and Sunday. |
| **Holiday 2** | In some workplace, there are different holidays, e.g., Wednesday. |
| **Special Day** | Set the schedule for local holidays or the adjusted working-day.<br>E.g., Oct. 10, Jul. 4, Oct. 1, Dec. 25, etc.<br>A maximum of 50 days can be set per Season. |




**A. The Searching Priority of the Normal day, Holiday, and Special Day:**

**Special Day (High) → Holiday 2 → Holiday 1 → Normal day (Low).**

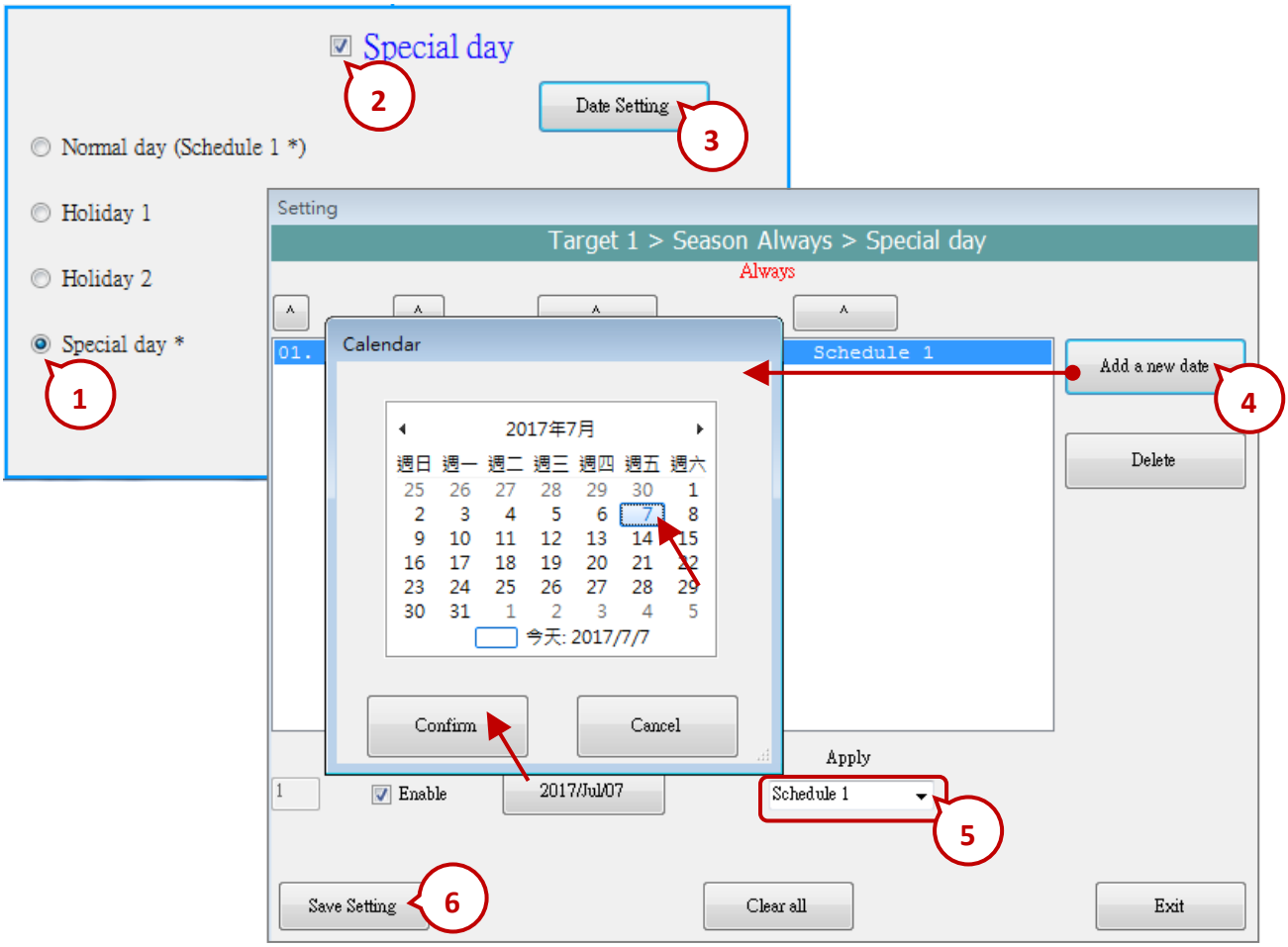


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1) The date of the Normal day, Holiday 1, and Holiday 2 can not overlap. For example,

| | The Correct Settings | The Wrong Settings |
|---|---|---|
| **Normal day** | Monday, Tuesday, Wednesday, Thursday, Friday | Monday, Tuesday, Wednesday, Thursday, **Friday** |
| **Holiday 1** | Sunday, Saturday | Saturday |
| **Holiday 2** | Disabled | Sunday, **Friday** |

2) Configure a date for the Special Day**:**
A maximum of **50** special days, i.e., local holidays or the adjusted working-day, can be set per Season. Each enabled date of the Special Day must be assigned a Schedule number (1 to 5).




**B. The Default Value of the Boolean, Integer, and Real Variable :**

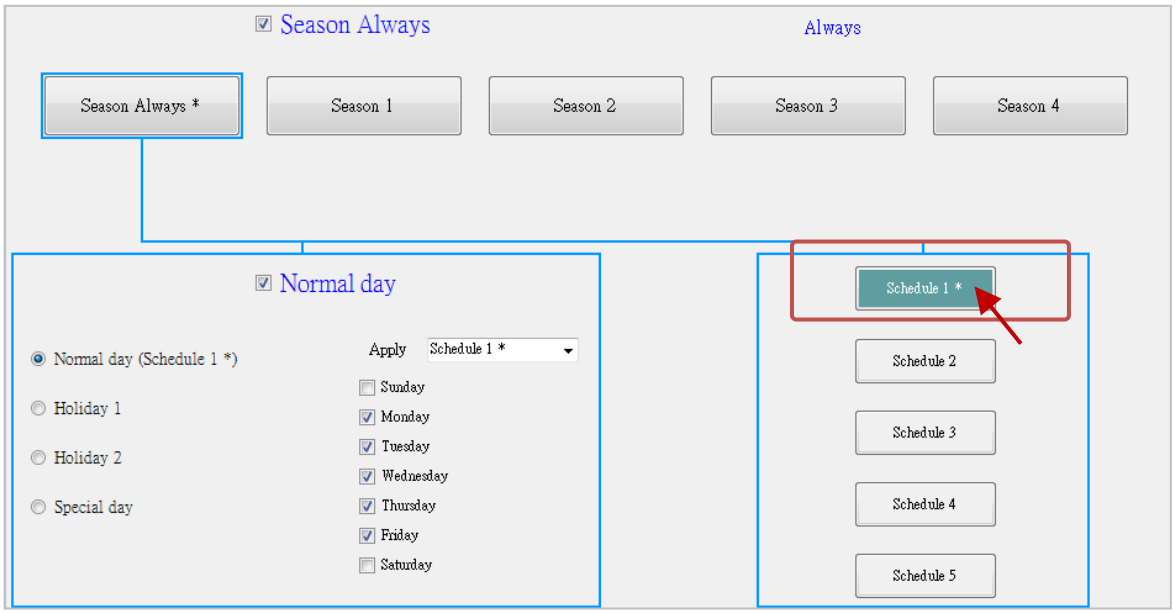
In Season Always, if the Dates and Time Periods are not in the setting conditions, the variables will be assigned the "Default Values" (Boolean = OFF, Integer = 0, and Real = 0). The user can also set the Default Values by desired.



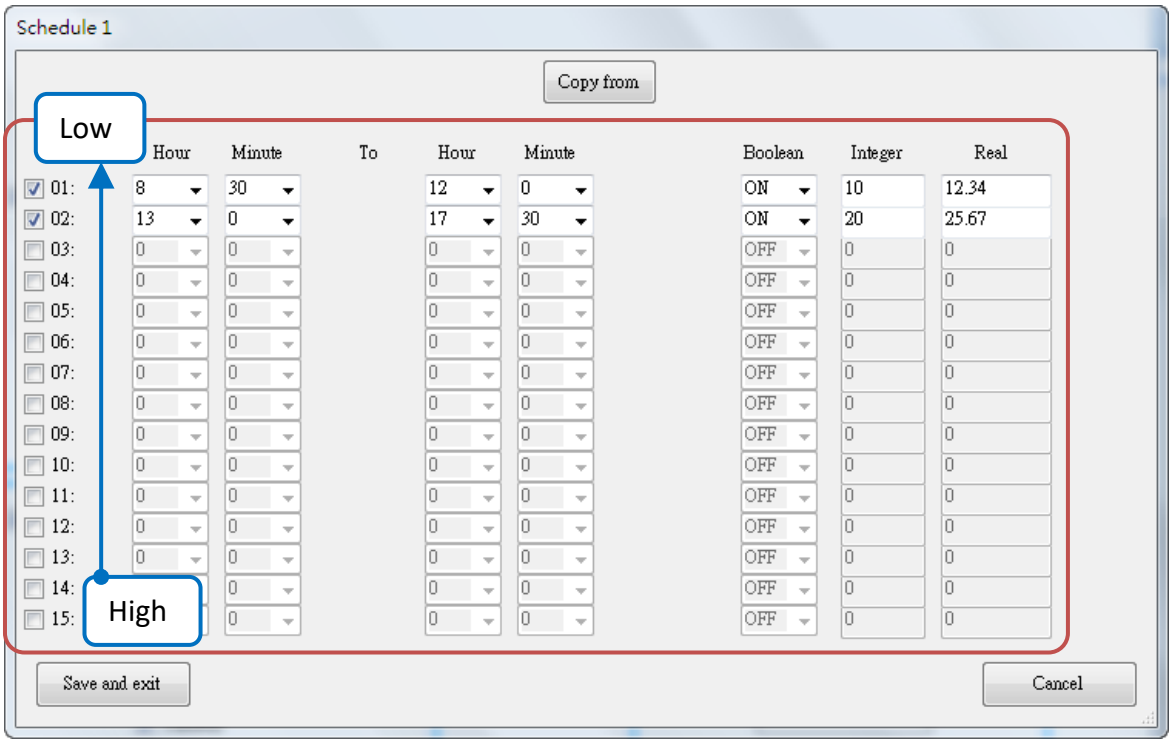
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### 2.2.2. Configure the Schedule

A maximum of 5 Schedules (1 to 5) can set per Season, and a maximum of 15 time periods can set per Schedule. The time unit is minutes and must be in the range of 00:00 to 24:00.




**The searching priority of Time Periods in the schedule is in the order of the largest number to the smallest number.** If the Time Periods overlap, the PAC conducts the schedule control with the larger number settings. If none of these 15 Time Periods is matching, using the default values.






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## 2.3. Save & Send the Schedule file to the Win-GRAF PAC

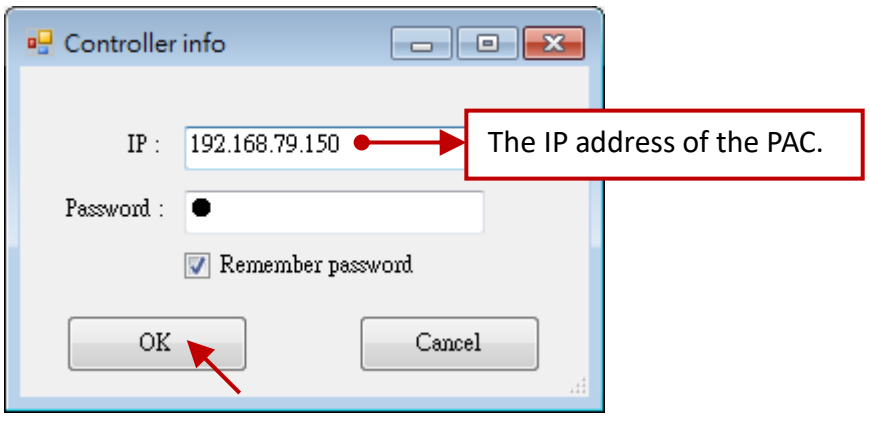
After completing the settings, save and send the schedule file to the PAC:




1. Click the “Save to PC” button to save the configuration file (“ *.txt ”).




2. Click the “Send to Controller” button to send the Schedule file to the PAC. Simply, enter the IP address of the PAC and the password (defaults: 0). Note that you can tick the "Remember password" option to transfer the file faster next time.

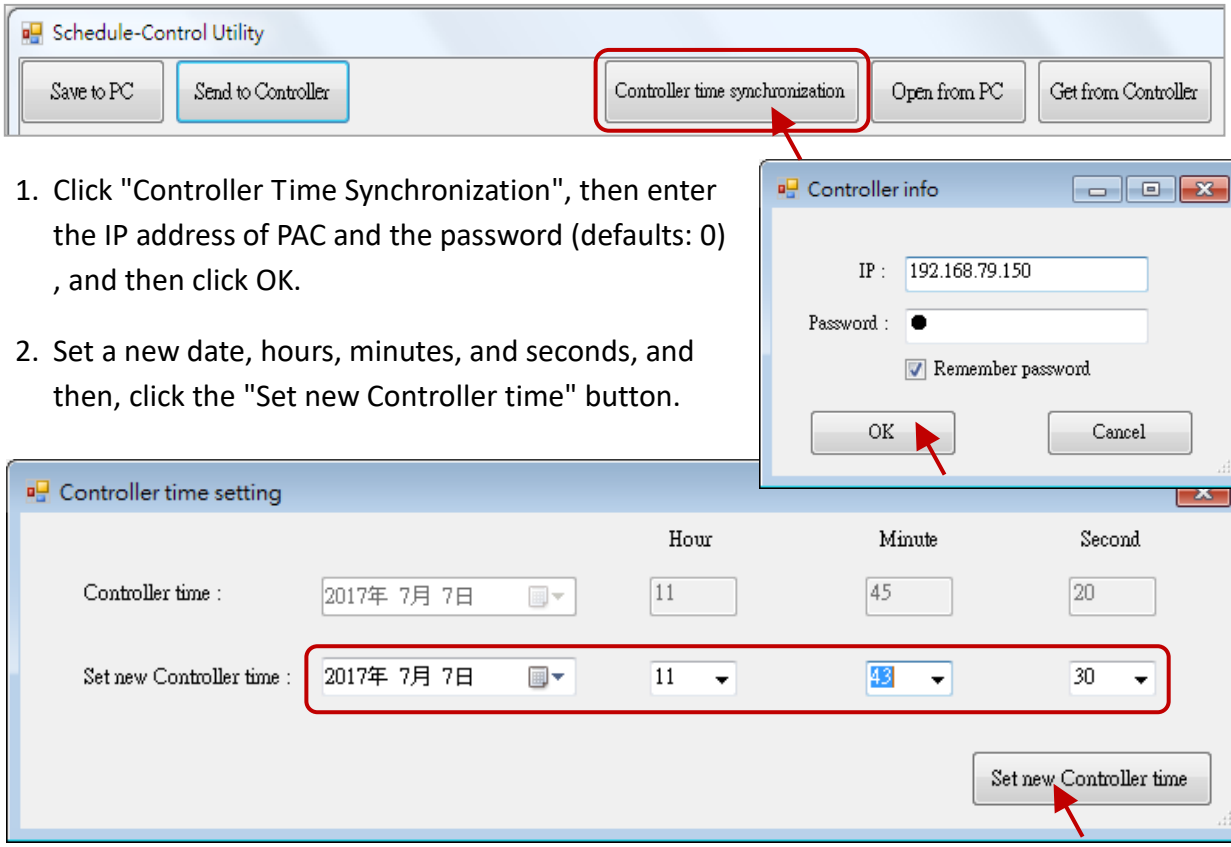





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### 2.3.1. Time Synchronization

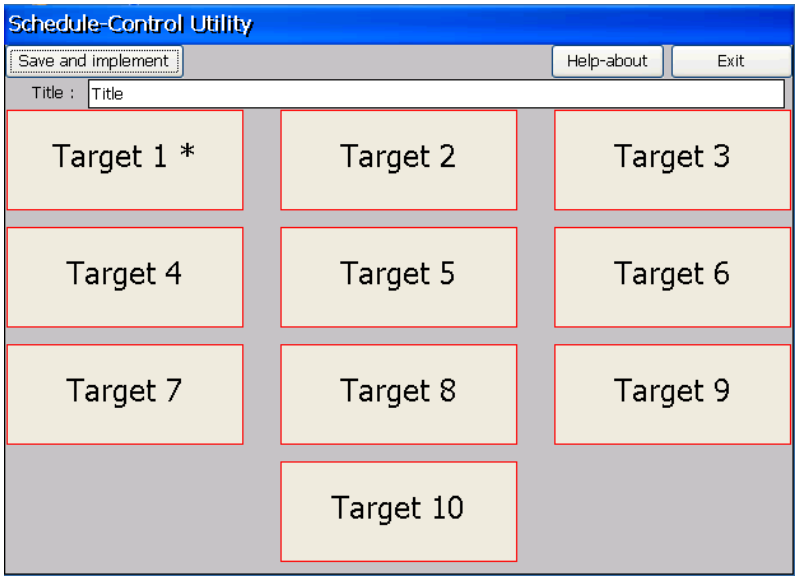
If you never calibrate the PAC time during a long-term working (e.g., one year), there may be a time error for 10 seconds to several minutes. For conducting the schedule in the same time, the Schedule-Control utility provides a function to synchronize the PAC time with your PC.




1. Click "Controller Time Synchronization", then enter the IP address of PAC and the password (defaults: 0) , and then click OK.
2. Set a new date, hours, minutes, and seconds, and then, click the "Set new Controller time" button.

### 2.3.2. Configure the Schedule-Control Utility on the PAC

The configure ways on PAC or PC are the same, only the screen looks a bit different. See Section 2.1 to 2.2.



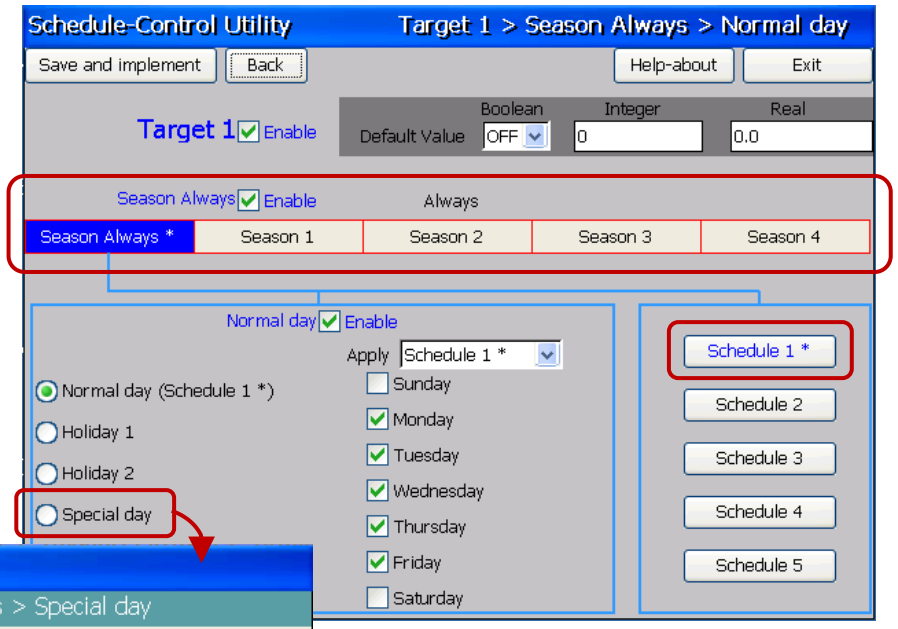

1. The “Target” Setting:
   See Section 2.1.

**Note:**
Remenber to add the path of the software to the Auto Execution of the PAC Utility. (i.e., \System_Disk\Win-GRAF\ schedule_in_pac.exe)

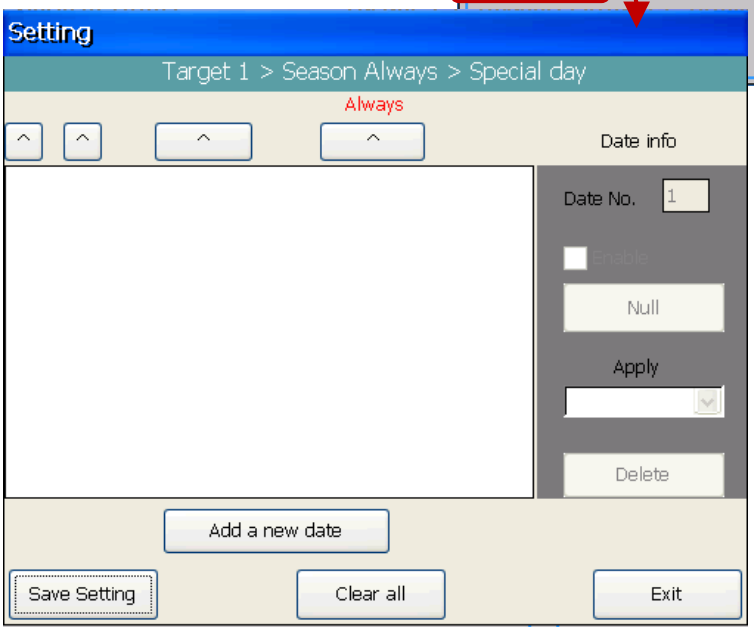


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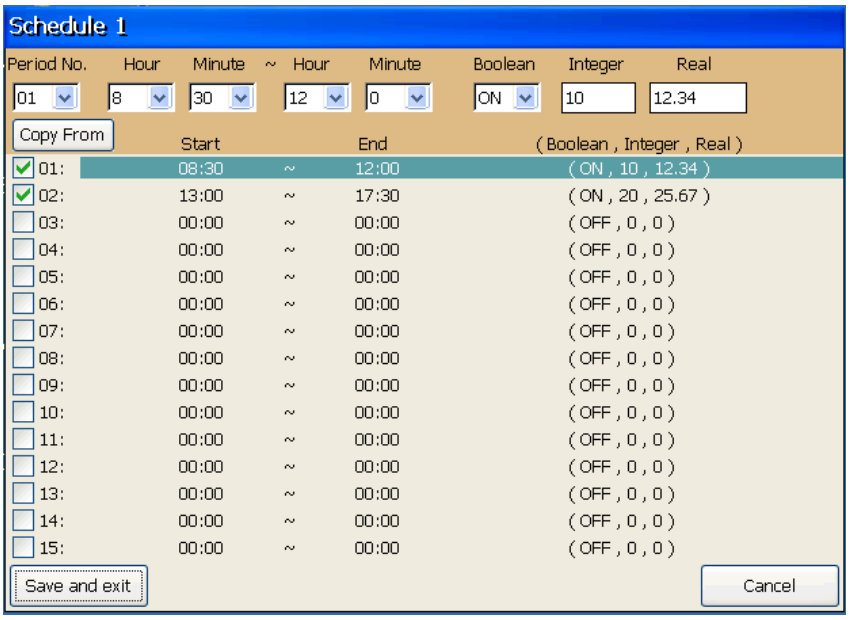
2. The “Season” Setting:
   See Section 2.2.




3. The “Special day” Setting:
   See Section 2.2.1.




4. The “Schedule” Setting:
   See Section 2.2.2.






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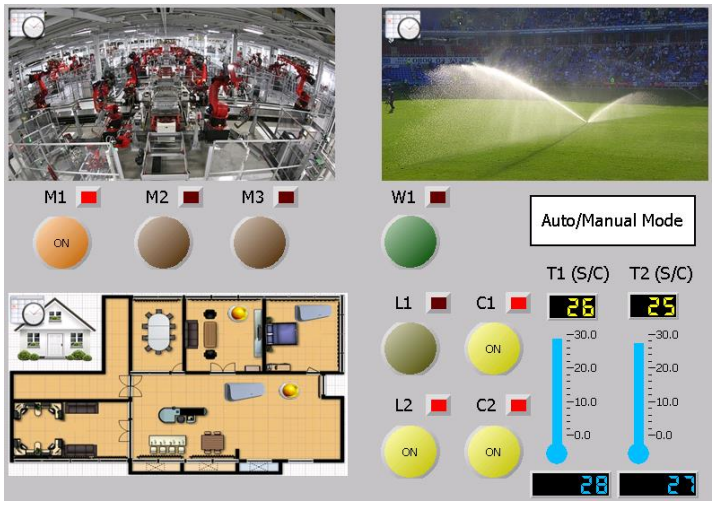
## Chapter 3. Introduction of Demo Programs

In this example, we use the following hardware products to conduct the schedule control.

| Device | Model | Description |
|---|---|---|
| **Win-GRAF PAC** | VP-1238-CE7 | Used to deal with 8 targets for the shedule control. |
| **I-87K High Profile I/O Modules** | I-87057**W** | 16-ch DO module which be installed on the slot0 of the PAC, and used to control the status of mechines, a sprinkler, lights, and air-conditioners. |
| | I-87018R**W** | 8-ch thermocouple AI module which be installed on the slot1 of the PAC, and used to display the current indoor temprature. |

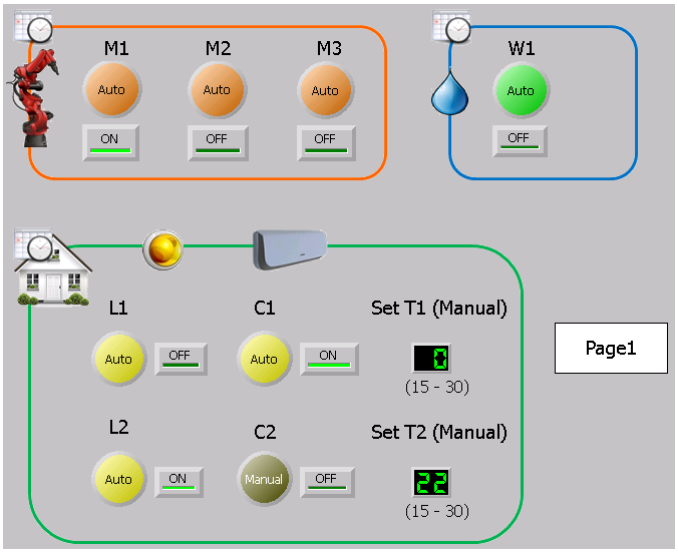
On the HMI pages:

**Page – Schedule**




Note: This page only allows you to view the statuses or values of the devices.

1. It can display the ON/OFF status of the machines (M1 - M3), the sprinkler (W1), the lamps (L1, L2), and the air-conditioners (C1, C2). Also, the scheduled and the current temperatures (T1, T2).
2. The red LEDs lit indicates that it is currently in the "ON" period of the schedule. If not, displays by the default values.
3. Click the Auto/Manual Mode can display the configuration page.




**Page - Auto/Manual Mode**

1. The default mode is Auto. If set it to the Manual mode, you can change the device statuses and the scheduled temperatures.
2. When the Auto is set, the scheduled status and temperature will be displayed on the Schedule page.
3. In Auto mode, the C1/C2=OFF and T1/T2=0 during "OFF" period. But, if the indoor temperature is larger than 30 °C, the air-conditioners (C1/C2) will set to ON, and the scheduled temperatures (T1/T2) will set to 28.



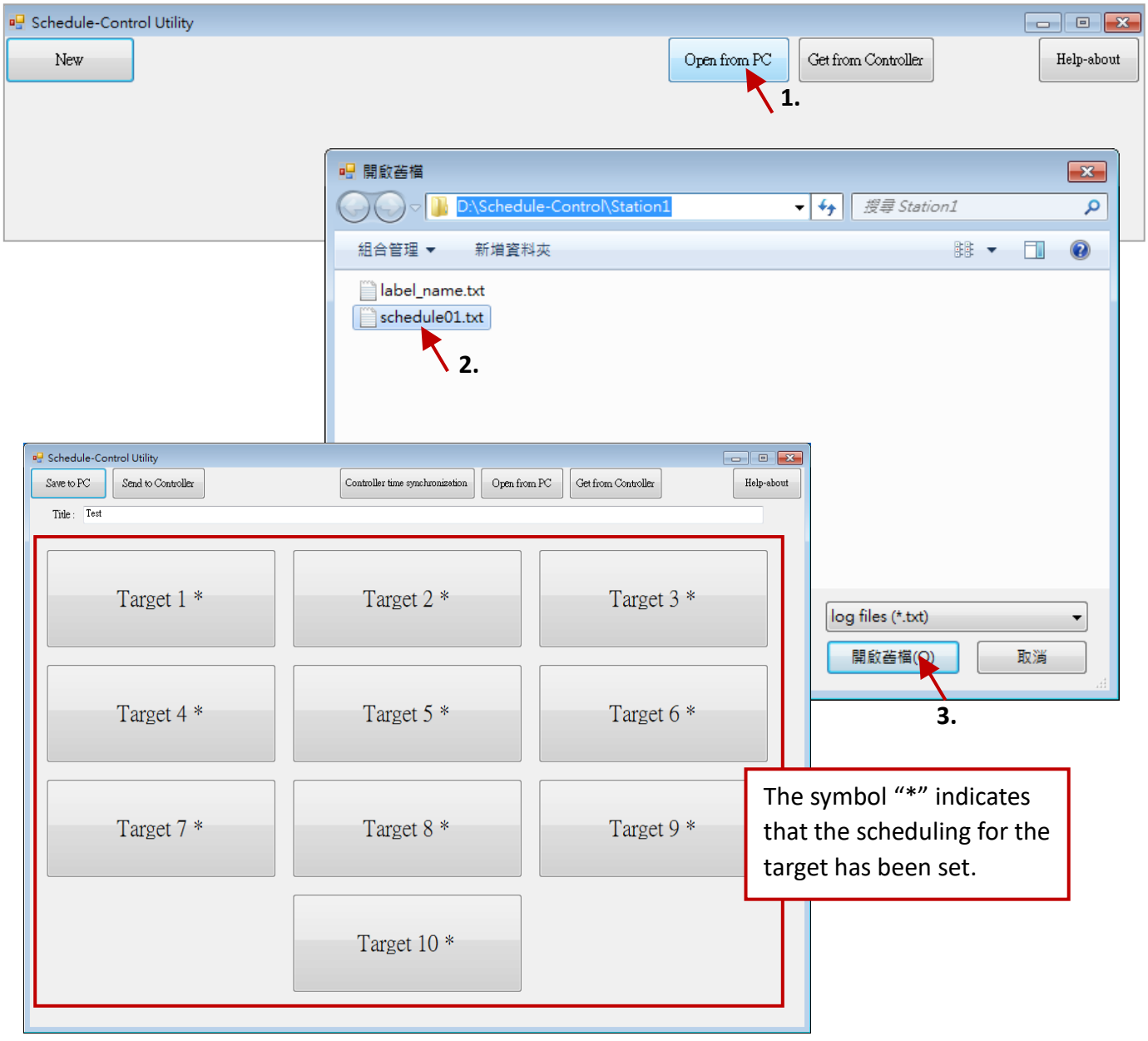
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The following will introduce you the demo programs of the Schedule-Control Utility, Win-GRAF, and eLogger HMI.

## 3.1. The Configuration File of the Schedule-Control Utility

Visit the Win-GRAF FAQ (FAQ-019) web page to download the Schedule file (schedule01.txt), and copy this file to the location where the "Schedule_in_PC.exe" is stored in (e.g., D:\Schedule-Control\Station1\).

1. Execute the Schedule-Control utility, and click "Open from PC" to open an existing file (schedule01.txt) Alternatively, click "New" to create a new settings.



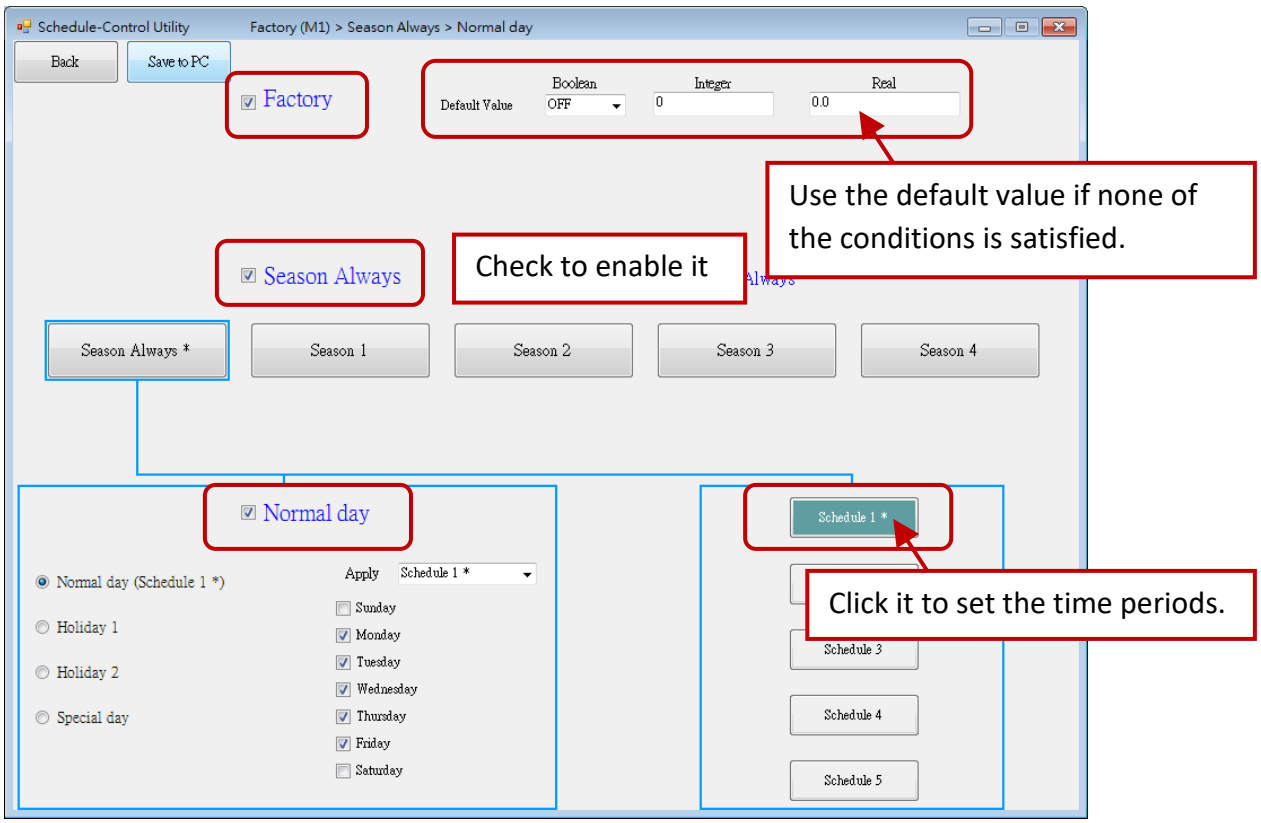



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2. In this case, we enabled 8 targets and each of them are set as "Season Always“. See the following settings first.

| Season Always | Normal day | Schedule 1 | | | | |
|---|---|---|---|---|---|---|
| Target | | Hour/Minute | | Boolean | Integer | Real |
| Factory (M1) | Mon. to Fri. | 01 | 8:30 – 12:00 | ON | 0 | 0 |
| Factory (M2) | | | 12:00 – 15:00 | | | |
| Factory (M3) | | | 15:00 – 18:00 | | | |
| Lawn (W1) | Mon., Wed., and Fri. | 01 | 9:00 – 9:03 | | | |
| Home (L1) | Mon. to Fri. | 01 | 6:00 – 8:00 | | | |
| | | 02 | 17:00 – 22:00 | | | |
| Home (C1, T1) | Mon. to Fri. | 01 | 8:00 – 18:00 | | 26 | 26 |
| Home (L2) | Sun. to Sat. | 01 | 08:00 – 12:00 | | 0 | 0 |
| | | 02 | 17:30 – 23:00 | | | |
| Home (C2, T2) | Sun. to Sat. | 01 | 09:00 – 18:00 | | 25 | 25 |

3. Configuring the targets by using the settings above, and then click "Save to PC" to save the file called schedule01.txt. Click "Back" to go to the main screen. Note that we do not change the default values in this example, i.e., Boolean: OFF, Integer: 0 and Real: 0.0.



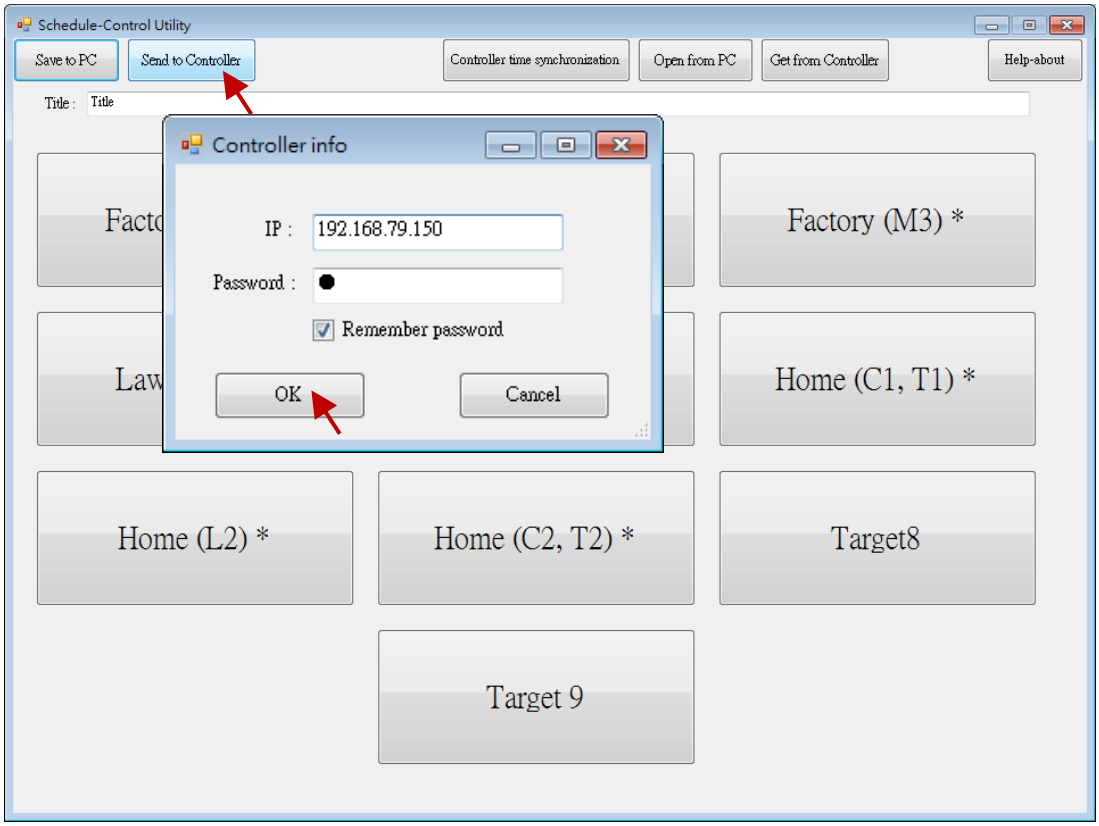



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**Note:** Up to 15 time periods can be set per Schedule. In the target - Home (C2, T2), we set the Boolean variable to ON, the Integer value as "25", and the Real value as "25" when the time is between 9:00 AM and 18:00 PM. Otherwise, using default values (i.e., Boolean: OFF, Integer: 0 and Real: 0.0, see the table above.)




4. After completing the settings, click "Send to Controller" to send the Schedule file to the PAC. Then, enter the IP address of the PAC and the password (defaults: 0, see Section 3.2.2 - Configure the I/O Boards - Password), and then click OK.





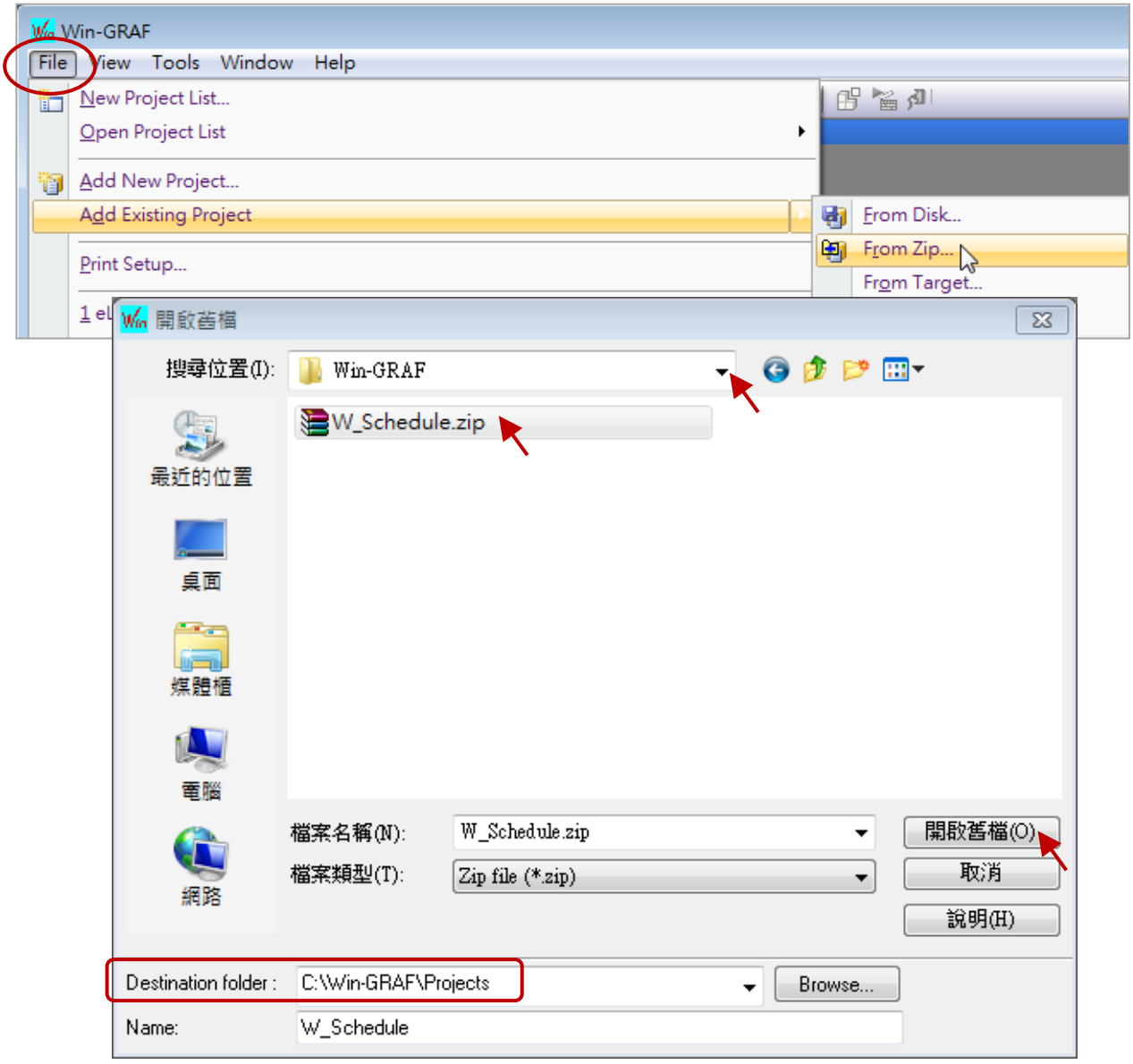

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## 3.2. The Win-GRAF Demo Programs

First, prepare a single Win-GRAF PAC (e.g., VP-1238-CE7). A single Win-GRAF PAC supports a maximum of 10 targets for the schedule control. Each target can control one Boolean, one 32-bit Integer and one Real variable (i.e., BOOL/DINT/REAL).

### 3.2.1. Restore the Win-GRAF Project (W_schedule.zip)

Visit the https://www.icpdas.com/en/faq/index.php?kind=273#840 - FAQ-019 to download the project file (W_schedule.zip), and then restore it to the PC / Win-GRAF.

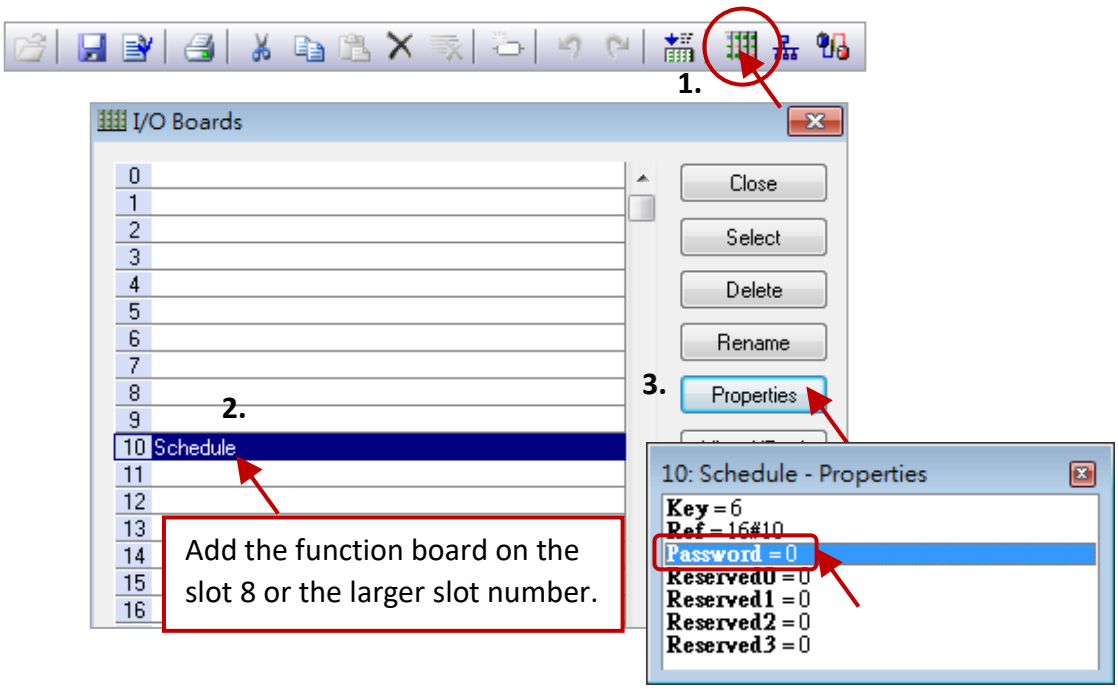




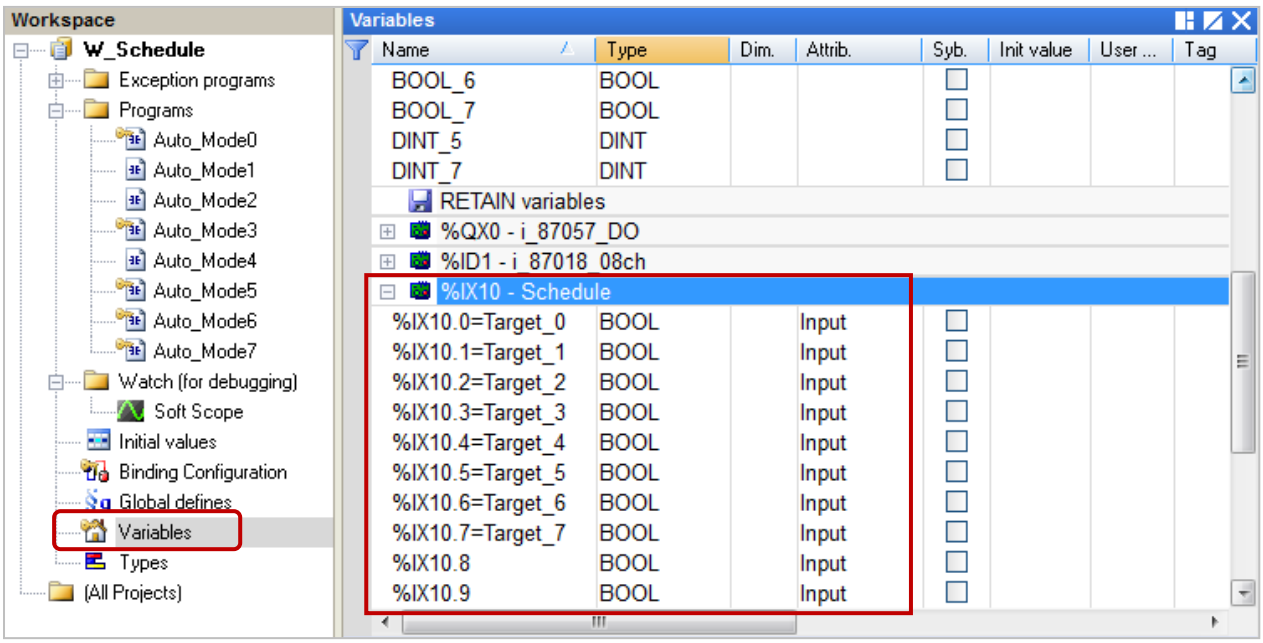

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### 3.2.2. Configure the “I/O Boards”

To enable the schedule-control function in the Win-GRAF PAC, add the “Schedule” function in the I/O Boards dialog box, and double-click the "Password" parameter in the "Properties" dialog box to set the password (defaults: 0). For functioning properly, the user needs to enter a correct password when sending /receiving the schedule file by using the Schedule-Control utility on PC.




After addling the “Schedule” functioin board, you can see the 10 (BOOL, Input) variables which used to return the scheduling status of the targets (1 to 10) in the “Variables" screen. "TRUE" indecates that the schedule control for the target is enabled ; "FALSE" means disabled.

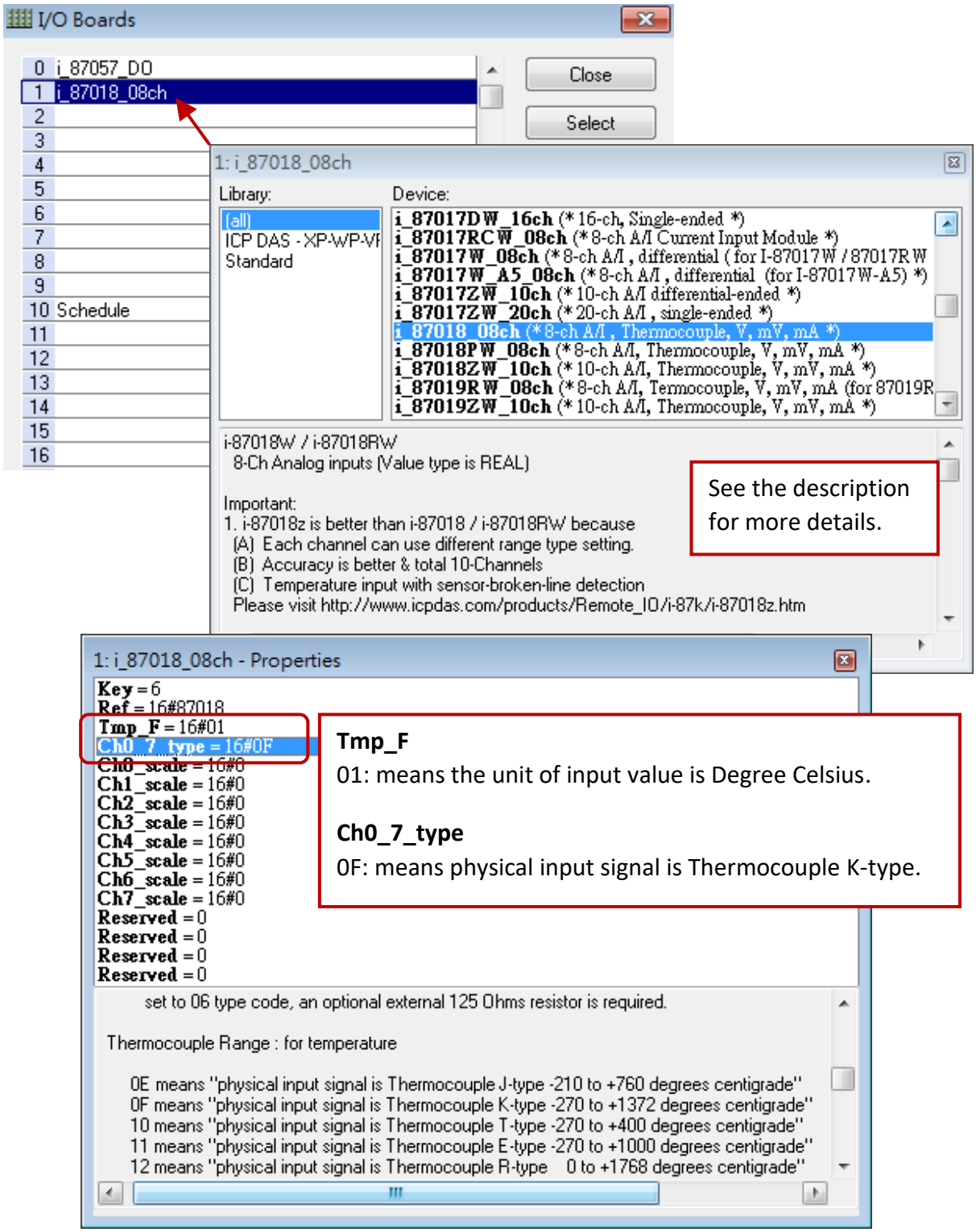





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Moreover, we use one I-87057W (Slot 0) and one I-87018RW (Slot 1) I/O modules on the Win-GRAF PAC so that we need to add two corresponding I/O Boards.

1. Double-click on the blank slot to choose these I/O boards. Then, configure the "i_87018_08ch" properties as illustrated in the figure below.

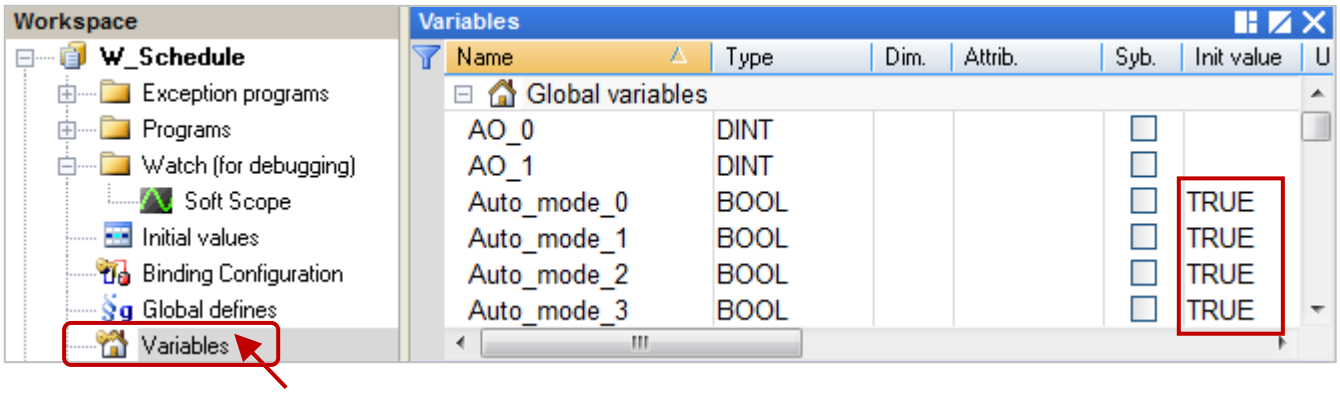





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### 3.2.3. Declare the Win-GRAF Variables

The user can configure or view all declared variables in the “Variables" screen.



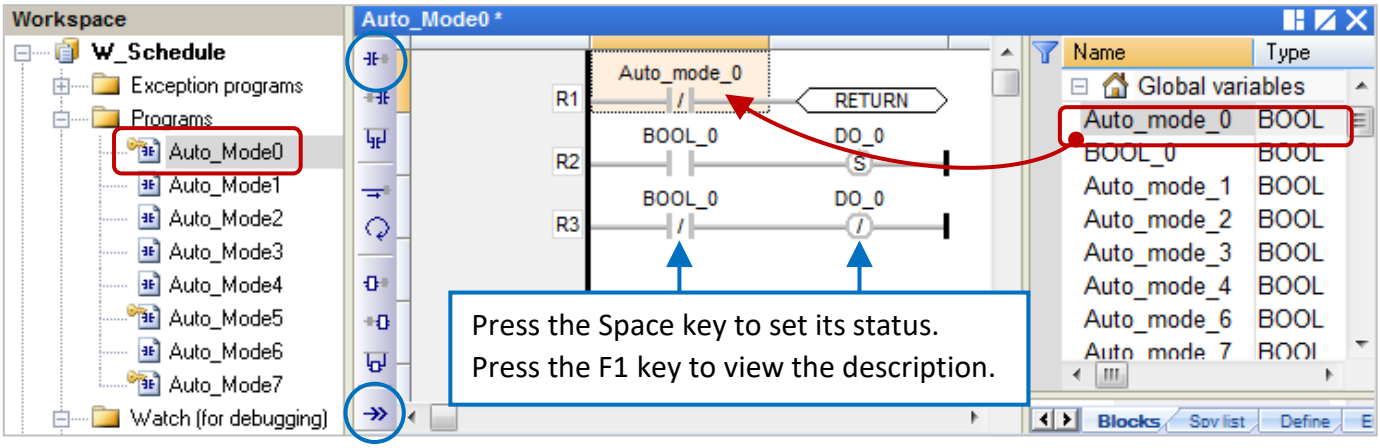

| Name | Type | Description |
|---|---|---|
| Auto_mode_0 to Auto_mode_7 | BOOL | Used to set the schedule to Auto mode or Manual mode. (Defaults: Auto, set the Init value as TRUE) |
| BOOL_0 to BOOL_7 | BOOL | The schedule-control variables which can be used to set the statuses of the machines (3), the sprinkler (1), the lamps (2), and the air-conditioners (2) to ON/OFF. |
| DINT_5 | DINT | The schedule-control variables which can be used to display the scheduled temperature of the air-conditioner (C1). |
| DINT_7 | | The schedule-control variables which can be used to display the scheduled temperature of the air-conditioner (C2). |
| AO_0 | DINT | In Manual mode, it used to change he scheduled temperature of the air-conditioner (C1). |
| AO_1 | | In Manual mode, it used to change he scheduled temperature of the air-conditioner (C2). |
| **I/O Board - “I_87057_DO” (Output)** | | |
| DO_0 to DO_7 | BOOL | In Manual mode, they used to change the statuses of the machines (3), the sprinkler (1), the lamps (2), and the air-conditioners (2) to ON/OFF . |
| **I/O Board - "i_87018_08ch” (Input)** | | |
| AI_0 to AI_1 | REAL | Used to display the current indoor temperature (C1/C2). |
| **I/O Board - “Schedule” (Input)** | | |
| Target_0 to Target_7 | BOOL | Used to display the schedule status of the target. We do not use them in this case. (TRUE: enabled ; FALSE: disabled.) |



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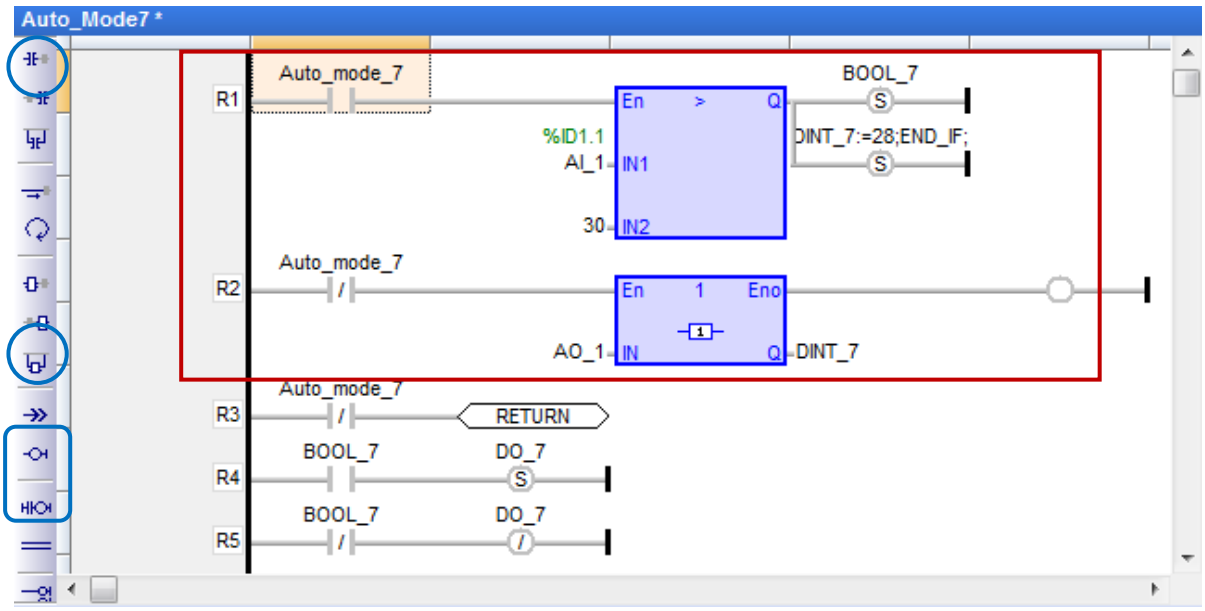
### 3.2.4. The Win-GRAF Program (Auto_Mode0 to Auto_Mode7)

In this example we add 8 LD programs (i.e, Auto_Mode0 to Auto_Mode7), the Auto_Mode 0 to 4 and 6 are similar only the used variables are different. By default, the Auto_mode_x is set to TRUE that means the Auto mode. When it set to FALSE, using Manual mode, you can change the status of the schedule-control variable (Boolean) by using the DO_x variable.




Next, the Auto_Mode 5 and 7 are similar, compared to the previous LDs, they add two more rows of components. The first row means that if it is in Auto mode (Auto_mode_x=TRUE) and the indoor temperature is larger than 30 C (AI_x > 30), the air-conditioner (C1) will be actived (BOOL_x = ON), and the scheduled temperature (T1) will be set to 28 C (DINT_x = 28). In Auto mode, normally we have set the ON/OFF time periods and the temperature for the air-conditioner (see Section 3.1). In this example, even during the OFF time period, the user can add conditions in the program to active the air-conditioner when the indoor temperature is larger than 30 C.

The 2nd row means that if it is in Manual mode (Auto_mode_x= FALSE), the user can change the value (i.e., temperature) of the schedule-control variable (DINT) by using the AO_x variable.



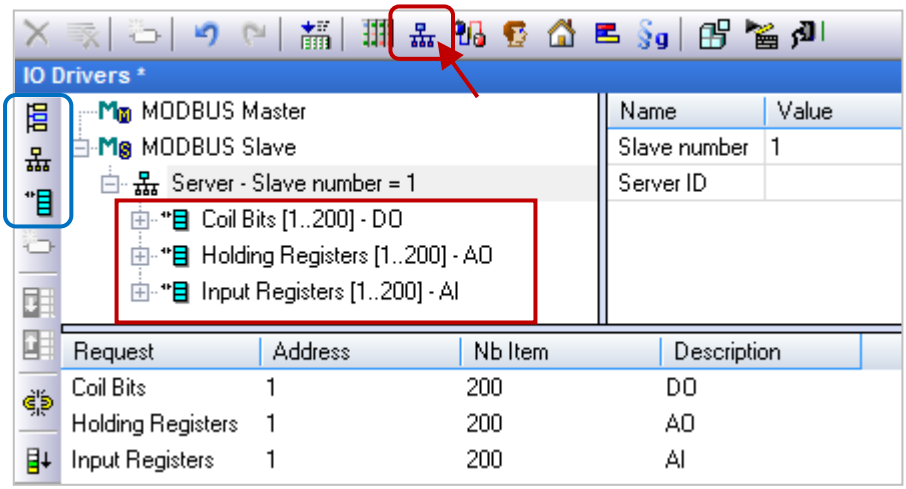



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### 3.2.5. Configure the Win-GRAF Variables for the eLogger HMI to Access Data

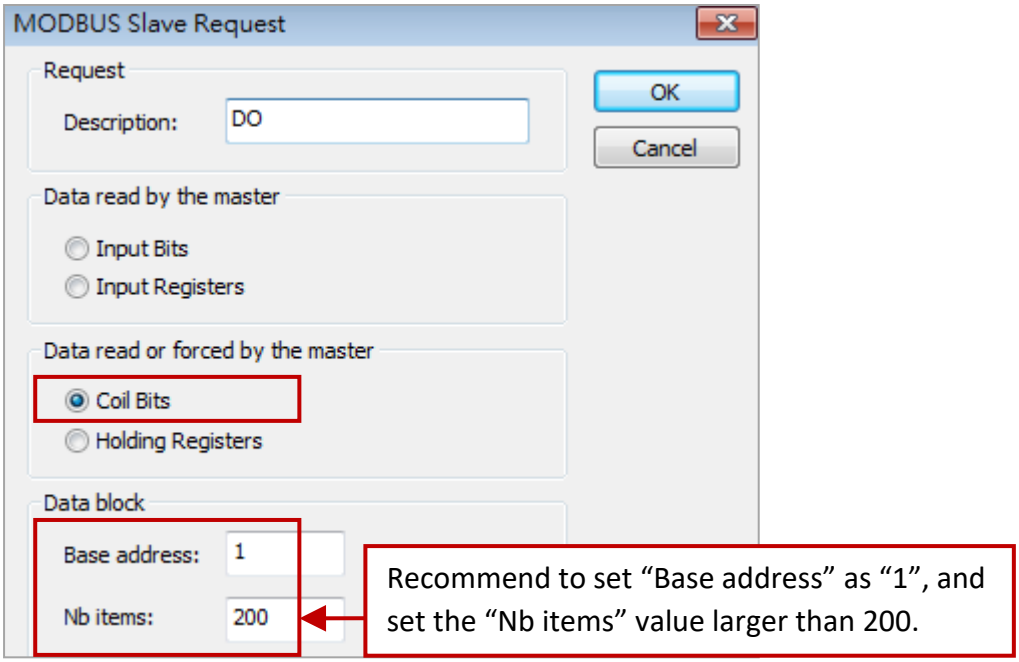
**Step 1. Enable the Win-GRAF PAC as a Modbus TCP Slave Device**

Click the "Open Fieldbus Configuration" button to open the "IO Drivers" window. Next, enable the Win-GRAF PAC as the Modbus TCP Slave. If you are not familiar with the operations, see Section 1.1 of the Win-GRAF FAQ-008 for more details. In this example, we add three data blocks that used to share the DO, AO and AI variables.




**1) Data Block - Coil Bits:**

Used to share the Win-GRAF Boolean variables data for communicating with the eLogger DO tags.

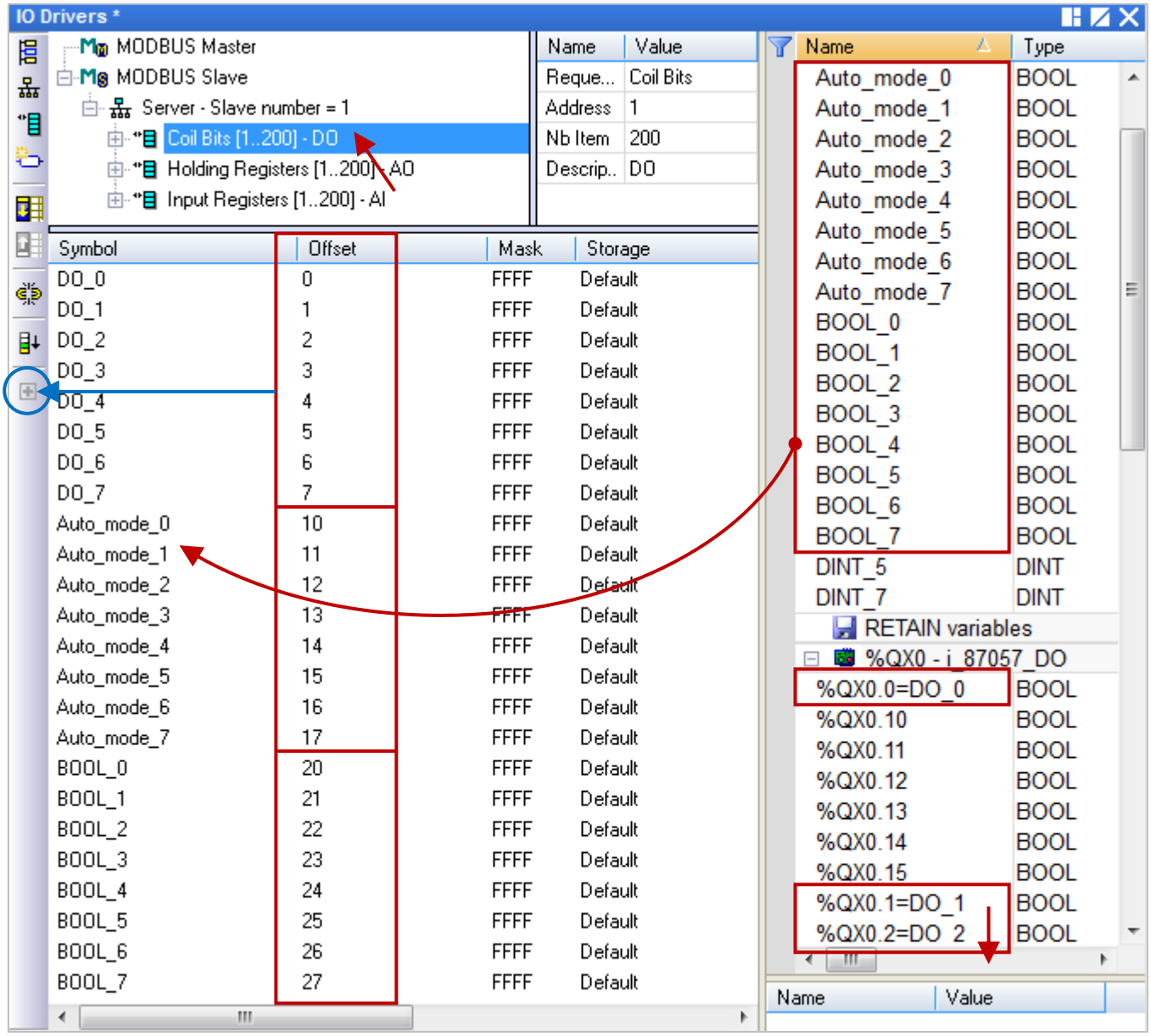





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Dragging all needed variables from the variable area to the Symbol area of the first data block, and then set the Offset value.

**Note:** The Offset value starts at 0, and the Modbus address equals the Offset value plus 1. Moreover, the Modbus address of Win-GRAF variables and corresponding eLogger tags must be the same.



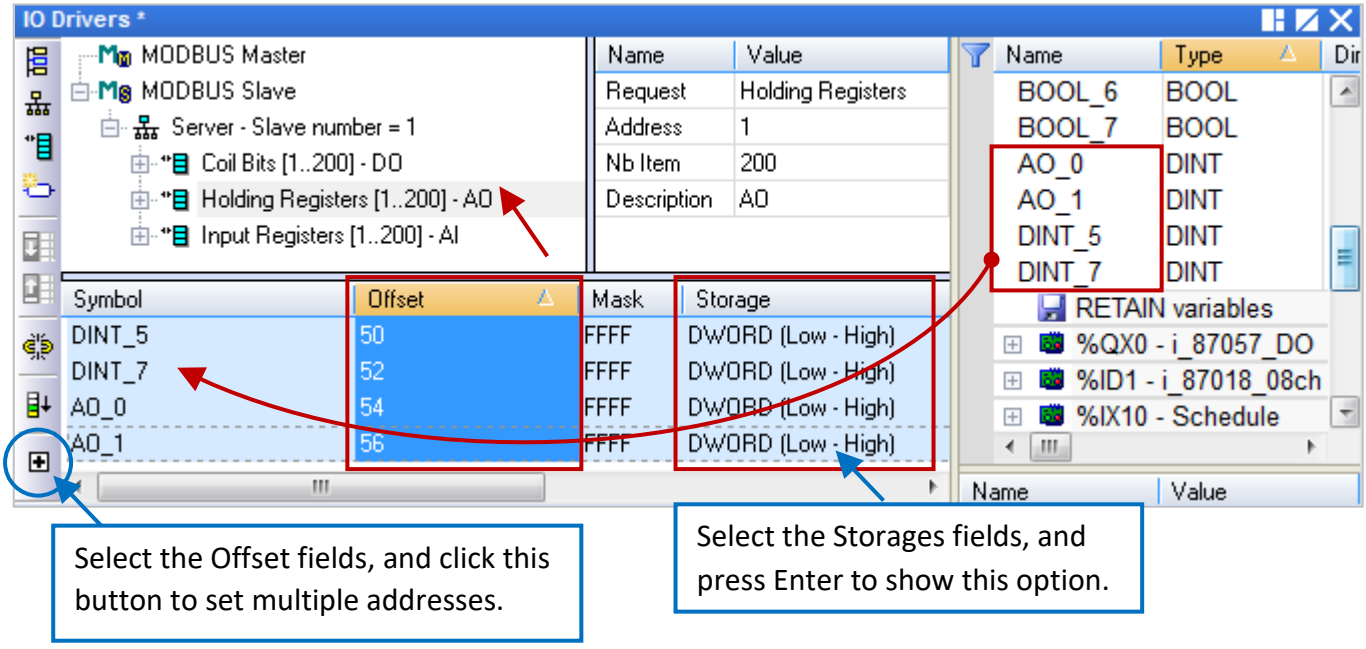



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**2) Data Block – Holding Registers:**

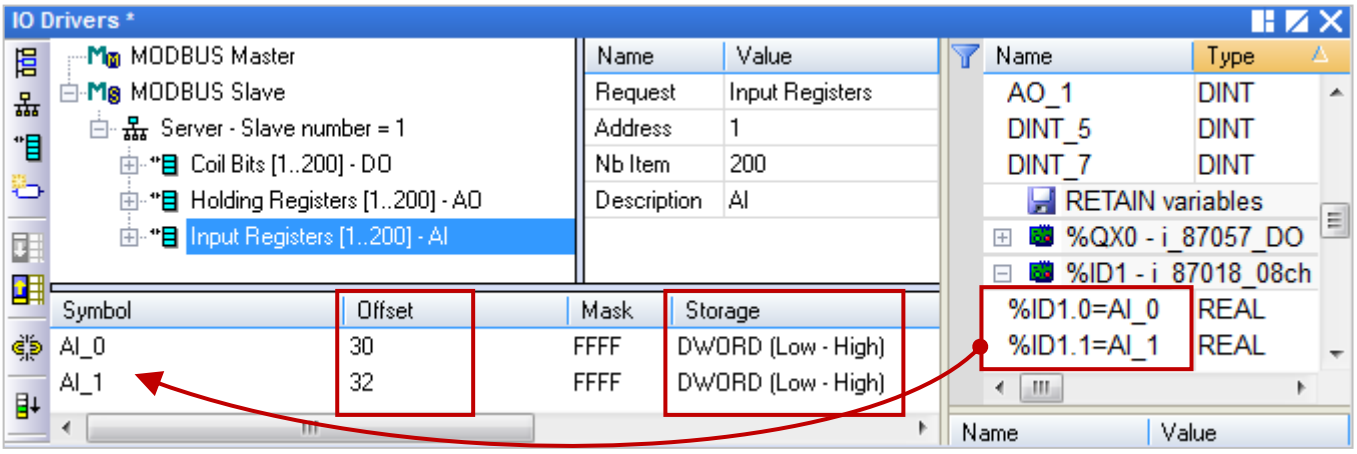
Used to share the Win-GRAF Integer and Real variables data for communicating with the eLogger AO tags. Dragging all needed variables to the Symbol area of the 2nd data block. In this case, set the Offset value as 50 to 56, and set the Storage as "DWORD [Low –High]".

**Note:** (1) The Modbus address equals the Offset value plus 1.
(2) If using a 32-bit or more data type (e.g., DINT and REAL), the variable needs to occupy **2** Modbus addresses, and the Storage field must set to "DWORD [Low –High]".




**3) Data Block – Input Registers:**

Used to share the Win-GRAF Integer and Real variables data for communicating with the eLogger AI tags Dragging all needed variables into the 3rd data block. In this case, set the Offset value as 30 and 32, and set the Storage as "DWORD [Low –High]".






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**Step 2. Configure the ID of Control Variables for each Target**

A single PAC supports a maximum of 10 targets for schedule control. Each target can control three variables – one Boolean, one 32-bit Integer and one Real variable (i.e., BOOL/DINT/REAL).

If using the schedule-control function, you need to add the scheduling variables to the **Binding** screen, and set their specific identifiers, i.e., **5001 to 5030**. After downloading the Win-GRAF project to the PAC, the scheduling variable data will be applied according to the settings of the schedule-control utility.

In this example, we use 8 targets and the ID of the scheduling variables are marked in the table below.

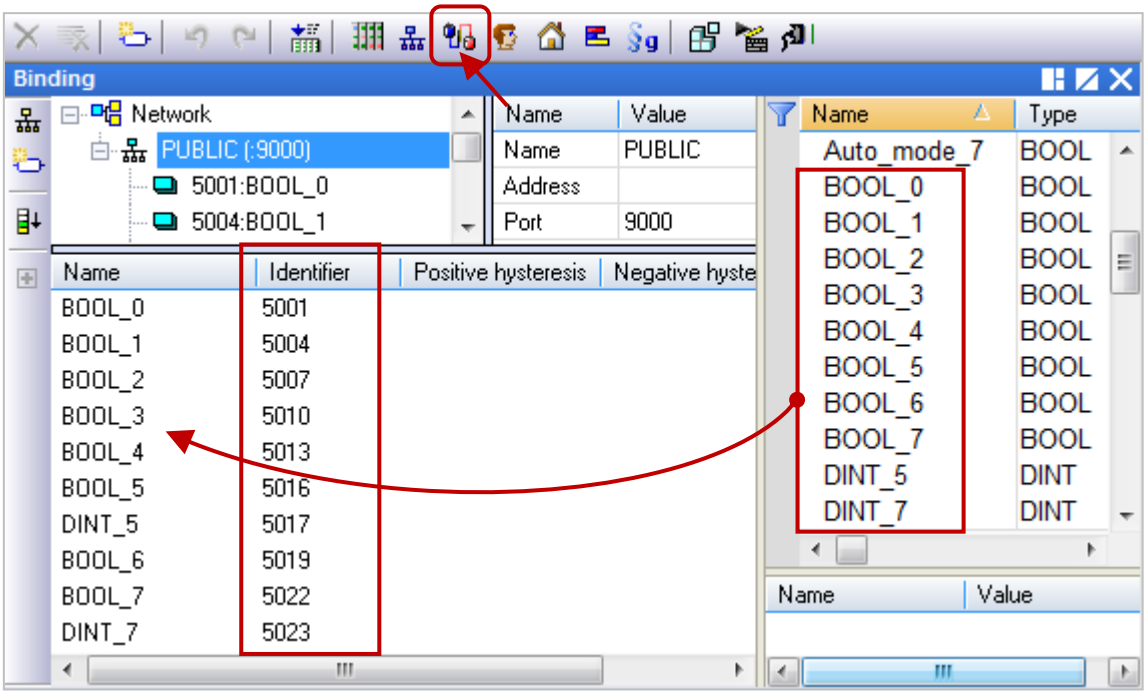
| Target | Type | ID | Target | Type | ID |
|---|---|---|---|---|---|
| The scheduling variables of **Target 1** | BOOL | **5001** | The scheduling variables of **Target 6** | BOOL | **5016** |
| | DINT | **5002** | | DINT | **5017** |
| | REAL | **5003** | | REAL | **5018** |
| The scheduling variables of **Target 2** | BOOL | **5004** | The scheduling variables of **Target 7** | BOOL | **5019** |
| | DINT | **5005** | | DINT | **5020** |
| | REAL | **5006** | | REAL | **5021** |
| The scheduling variables of **Target 3** | BOOL | **5007** | The scheduling variables of **Target 8** | BOOL | **5022** |
| | DINT | **5008** | | DINT | **5023** |
| | REAL | **5009** | | REAL | **5024** |
| The scheduling variables of **Target 4** | BOOL | **5010** | The scheduling variables of **Target 9** | BOOL | **5025** |
| | DINT | **5011** | | DINT | **5026** |
| | REAL | **5012** | | REAL | **5027** |
| The scheduling variables of **Target 5** | BOOL | **5013** | The scheduling variables of **Target 10** | BOOL | **5028** |
| | DINT | **5014** | | DINT | **5029** |
| | REAL | **5015** | | REAL | **5030** |

Next, we will add the scheduling variables to the **Binding** screen, and set their specific identifiers.



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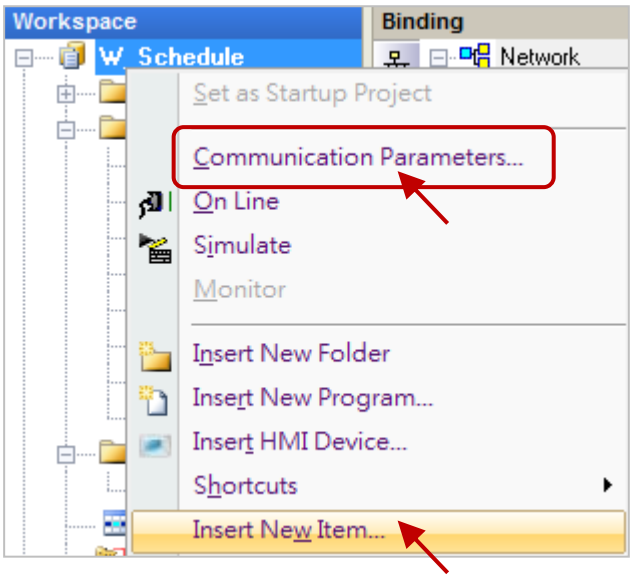
Click the "Open Binding Configuration" button to open the "Binding" window. Next, drag all needed variables from the Variable area into the PUBLIC and then set the identifiers of these variables.




**Note:** All variables which added into the PUBLIC can share data to VB .net or C# or C program in the same PAC or others PAC. See Win-GRAF FAQ-007: How to Exchange Data between PACs (Data Binding)? For more information.

### 3.2.6. Test the Win-GRAF Project

**Note:** Before downloading the project to the PAC, right-click on the project name and click "Communication Parameters" to set the current IP address of the PAC. In this case, the "PAC IP: Port" is 192.168.79.150:502.



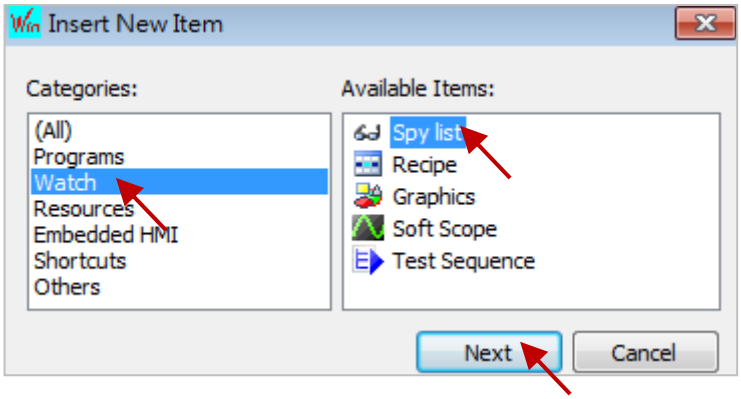

Moreover, you can create a Spy list to quickly and clearly graspe the variable data. Similarly, right-click on the project name and click "Insert New Item".



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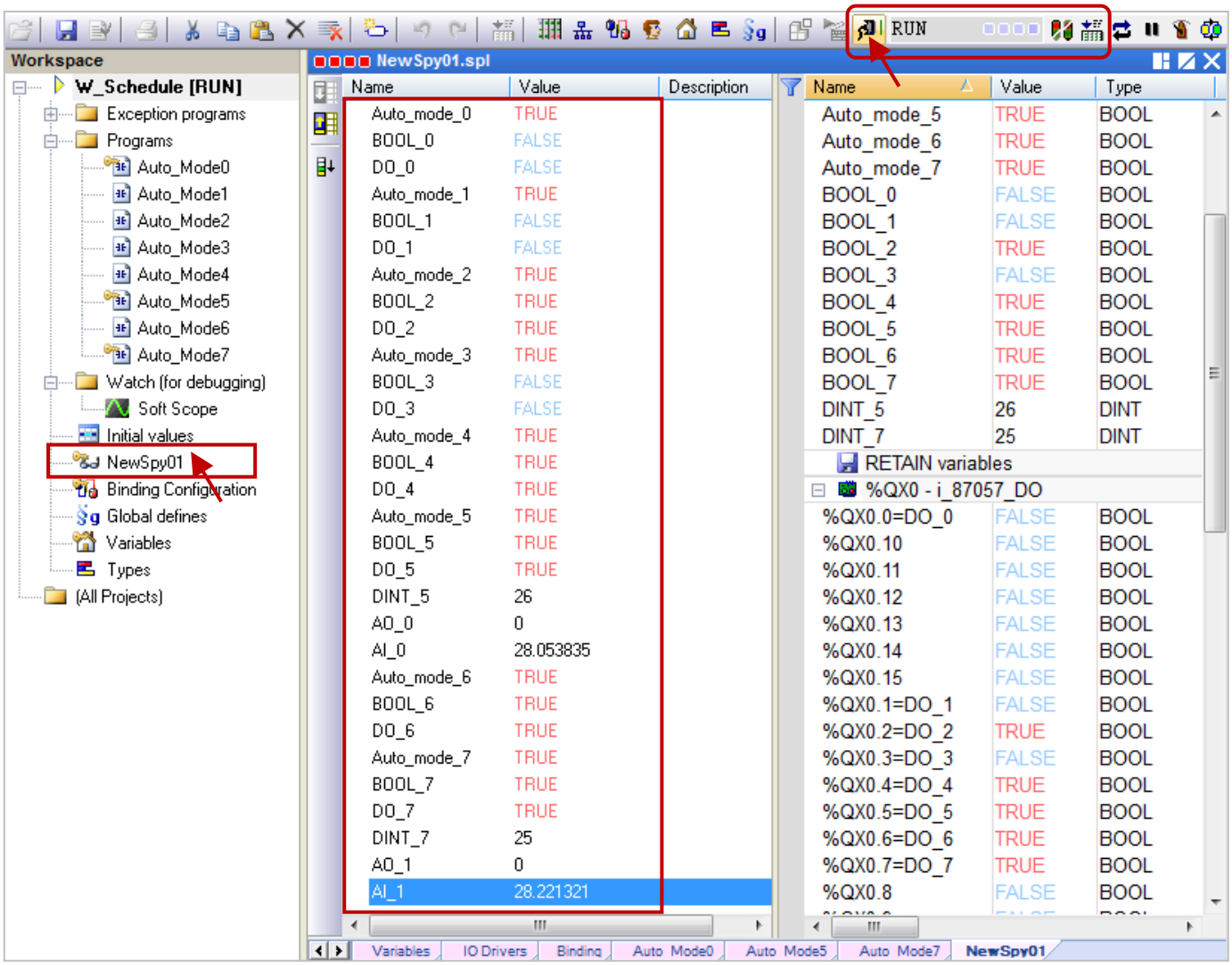
Next, click Watch and Spy list, and then click the Next button to display the configuration screen. Then, drag all needed variables into this screen to complete the settings.

See Section 11.3 of the Win-GRAF User Manual for more details about the Spy List.




## Test the Project

1. Click "On Line" to download the project to the PAC. In the spy list (NewSpy01), the status of Auto_mode_0 to 7 are "TRUE" which means Auto mode, and display value according to the Schedule-Control settings. And, the indoor temperature is 28 C (AI_x).
2. You can set the Auto_mode_5 to FALSE (Manual mode), and change the status of the DO_5 (TRUE to FALSE). And then, set the Auto_mode_5 to TRUE (Auto mode). Now, the DO_5 status will go back to the settings in the Schedule-Control utility.






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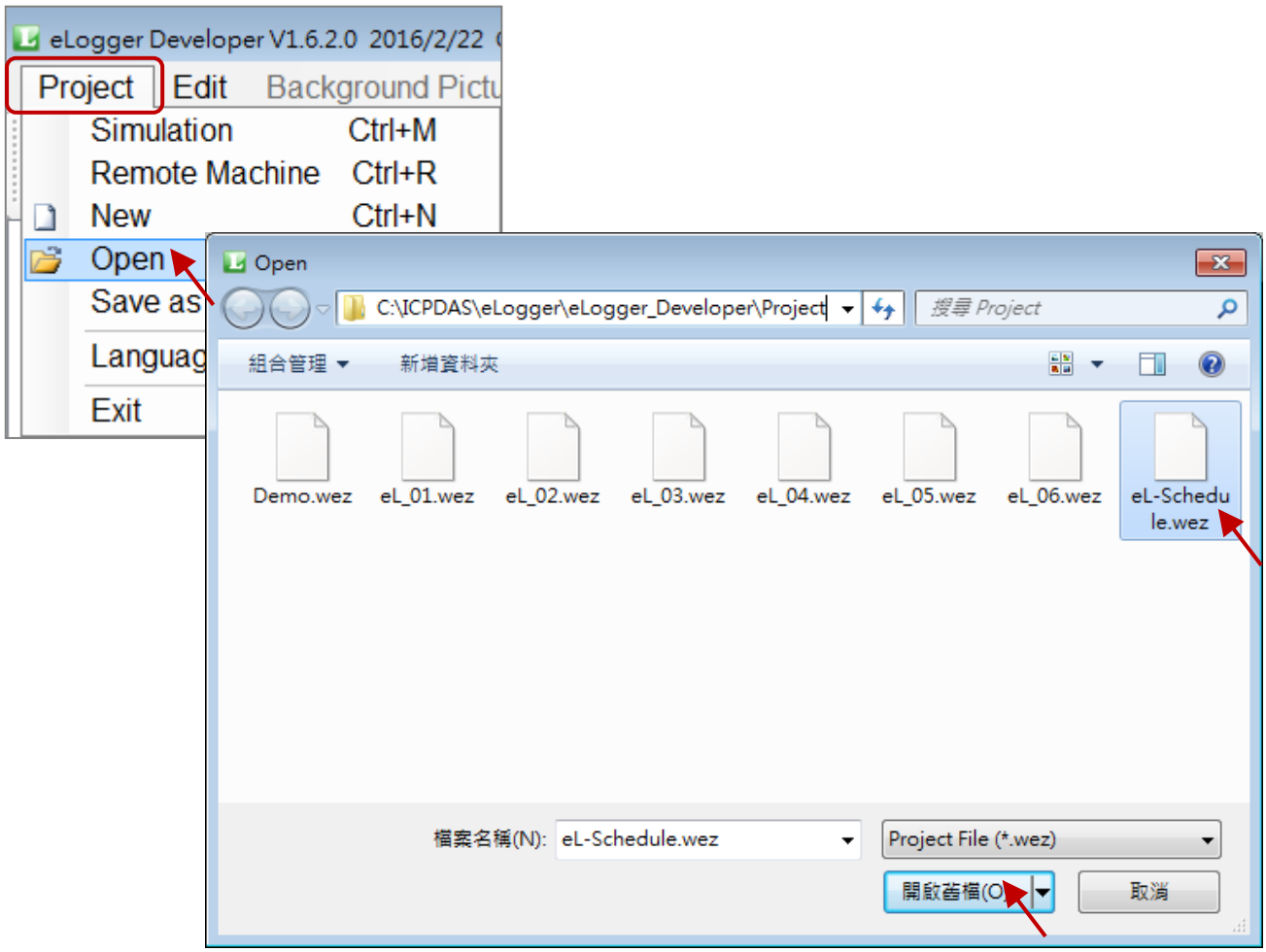
## 3.3. The eLogger Demo Programs

A single Win-GRAF PAC supports a maximum of 10 targets for the schedule control. Each target can control one Boolean, one Integer (32-bit Signed Long) and one Real (32-bit Float) variable.

Visit the https://www.icpdas.com/en/faq/index.php?kind=273#840 - FAQ-019 to download the eLogger project called "eL-Schedule.wez". Make sure you have installed the eLogger on your PC and PAC. If you are not familiar with the eLogger, see the eLogger User Manual or Win-GRAF FAQ-018 : How to Use Win-GRAF SoftLogic and eLogger HMI in the Win-GRAF PAC?

First, execute the eLogger Developer, and click Project and Open to open an existing project called eL-Schedule.wez.

**Note:** By default, the eLogger projects are stored in the C:\ICPDAS\eLogger\eLogger_Developer\Project.

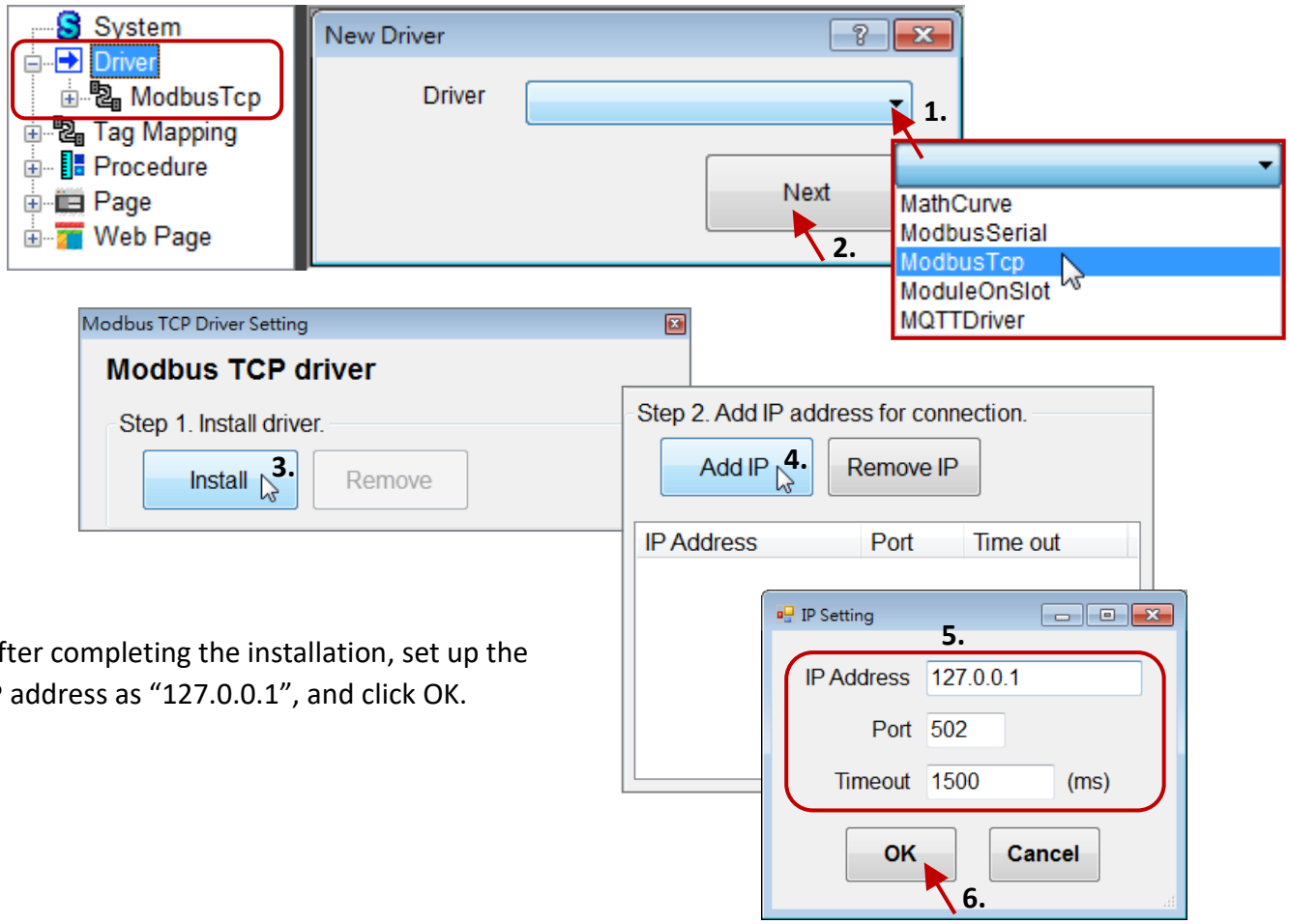





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### 3.3.1. Install the Modbus TCP Driver

For operating with the Win-GRAF SoftLogic, the eLogger needs to install the Modbus TCP Driver.




After completing the installation, set up the IP address as “127.0.0.1”, and click OK.

### 3.3.2. Declare Modbus Addresses

eLogger Tags and Win-GRAF variables are communicating each other via the Modbus address. In Section 3.2.5, we publish the following Win-GRAF variables and Modbus addresses.

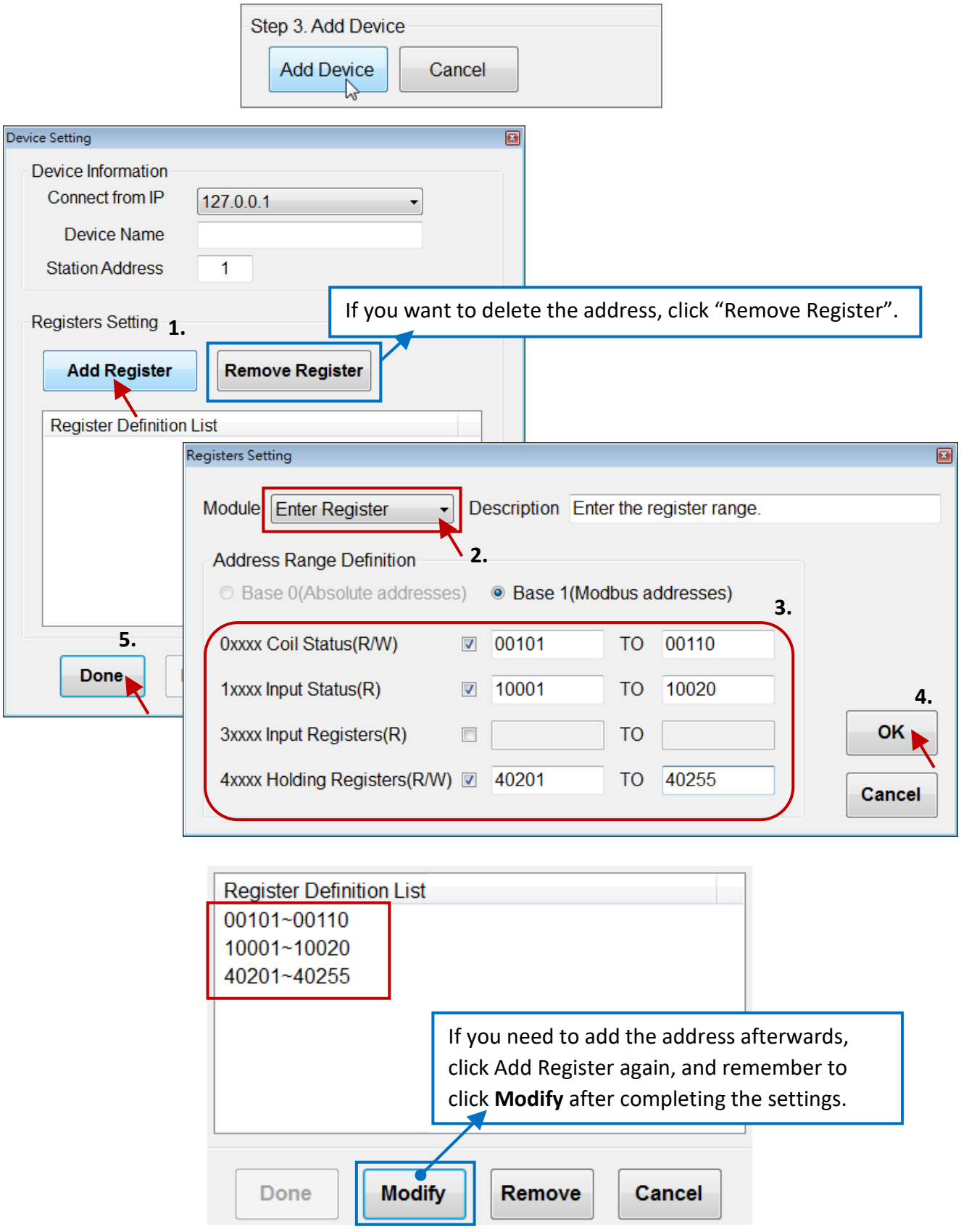
| Win-GRAF Variables | Modbus Address |
|---|---|
| DO0 to DO7<br>Auto_mode_0 to Auto_mode_7<br>BOOL_0 to BOOL_7 | 1 to 8<br>11 to 18<br>21 to 28 |
| AI_0 to AI_1 | 31 to 34 |
| DINT_5, DINT_7<br>AO_0 to AO_1 | 51 to 54<br>55 to 58 |

**Note:** The Modbus address equals the Offset value plus 1, and the DINT or REAL variable needs to occupy **2** Modbus addresses.



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Next, click "Add Device" to define the range of the Modbus address as follows.



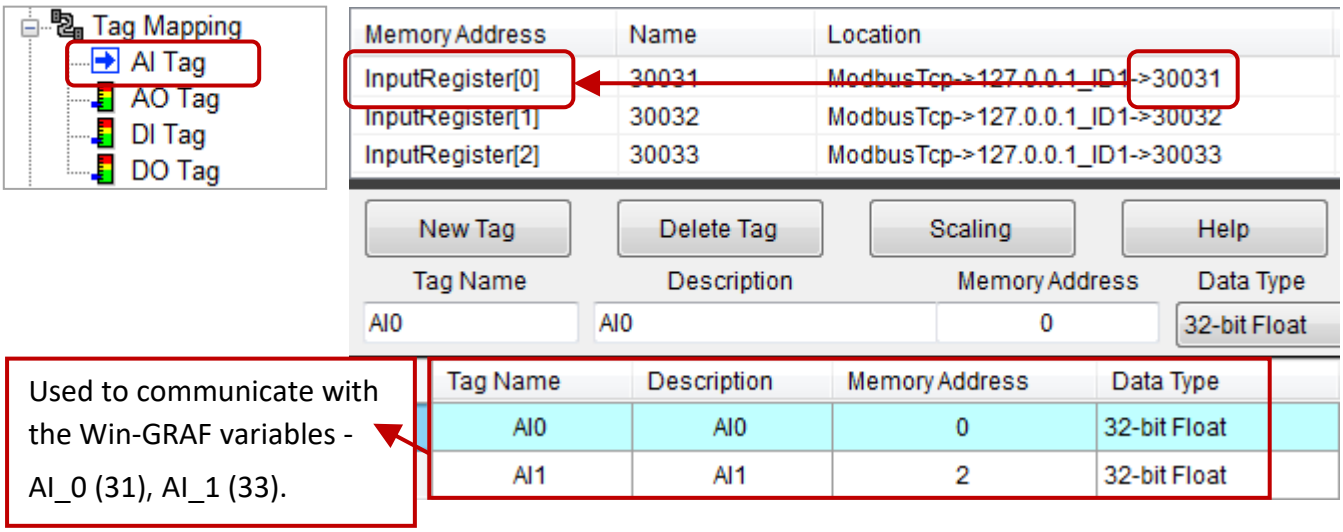



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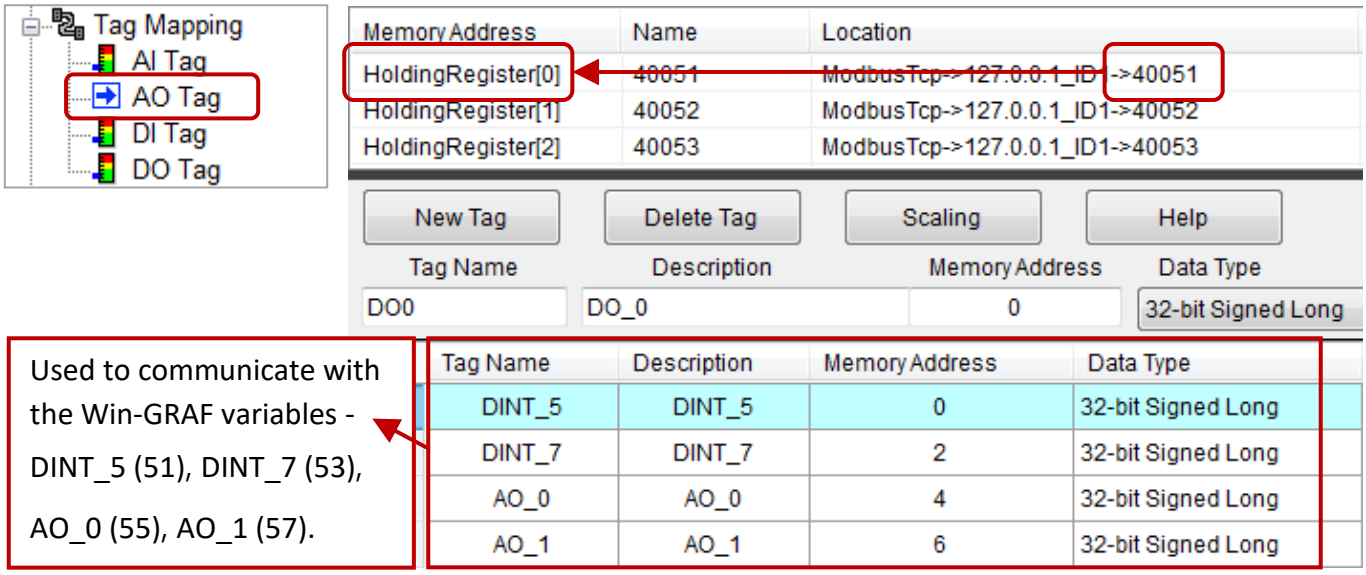
### 3.3.3. Declare eLogger Tags

After setting the Modbus address range, the eLogger will automatically create a mapping list for the Modbus address and the Memory address as the figure below. eLogger Tags and Win-GRAF variables are communicating each other via the Modbus address. To declare eLogger variables, you need to set the memory address correspond with the Modbus address which you set before in the Win-GRAF.

AI Tag: (Data Type: 32-bit Float)



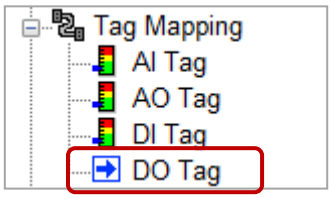

AO Tag: (Data Type: 32-bit Signed Long)






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DO Tag:




| Memory Address | Name | Location |
|---|---|---|
| CoilStatus[0] | 00001 | ModbusTcp->127.0.0.1_ID1->00001 |
| CoilStatus[1] | 00002 | ModbusTcp->127.0.0.1_ID1->00002 |
| CoilStatus[2] | 00003 | ModbusTcp->127.0.0.1_ID1->00003 |
| CoilStatus[3] | 00004 | ModbusTcp->127.0.0.1_ID1->00004 |

New Tag | Delete Tag | Scaling

| Tag Name | Description | Memory Address |
|---|---|---|
| DO0 | DO_0 | 0 |

Used to communicate with the Win-GRAF variables - DO_0 to DO_7 (1 - 8), Auto_mode_0 to Auto_mode_7 (11 - 18), BOOL_0 to BOOL_7 (21 - 28).

| Tag Name | Description | Memory Address |
|---|---|---|
| DO0 | DO_0 | 0 |
| DO1 | DO_1 | 1 |
| DO2 | DO_2 | 2 |
| DO3 | DO_3 | 3 |
| DO4 | DO_4 | 4 |
| DO5 | DO_5 | 5 |
| DO6 | DO_6 | 6 |
| DO7 | DO_7 | 7 |
| Auto_Mode_0 | Auto_0 | 10 |
| Auto_Mode_1 | Auto_1 | 11 |
| Auto_Mode_2 | Auto_2 | 12 |
| Auto_Mode_3 | Auto_3 | 13 |
| Auto_Mode_4 | Auto_4 | 14 |
| Auto_Mode_5 | Auto_5 | 15 |
| Auto_Mode_6 | Auto_6 | 16 |
| Auto_Mode_7 | Auto_7 | 17 |
| BOOL_0 | BOOL_0 | 20 |
| BOOL_1 | BOOL_1 | 21 |
| BOOL_2 | BOOL_2 | 22 |
| BOOL_3 | BOOL_3 | 23 |
| BOOL_4 | BOOL_4 | 24 |
| BOOL_5 | BOOL_5 | 25 |
| BOOL_6 | BOOL_6 | 26 |
| BOOL_7 | BOOL_7 | 27 |

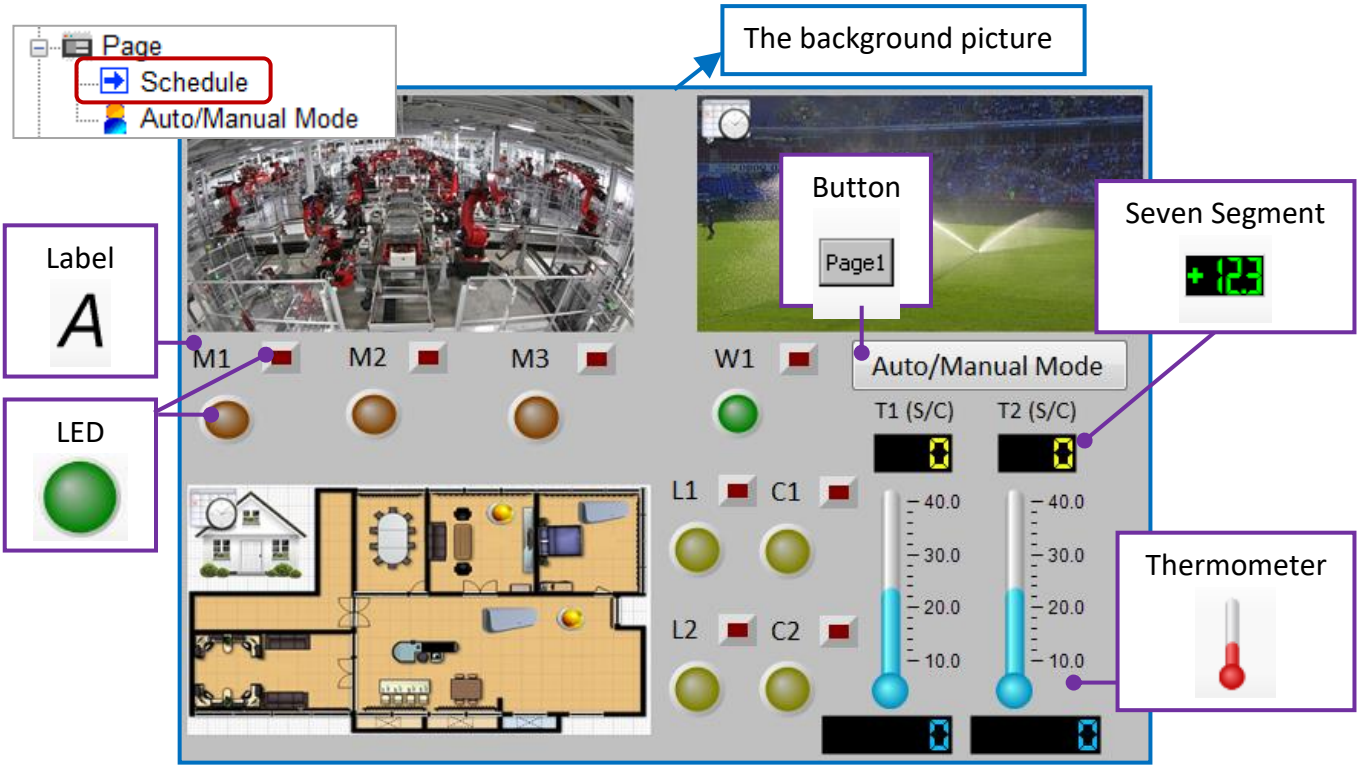


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### 3.3.4. Design the eLogger HMI

The eLogger project includes two Pages (called Schedule and Auto/Manual Mode) and two Web Pages (Login, Home) that apply in three kinds of application field (e.g., factory, lawn, and Home).

**Page - Schedule :** Used to display the status (or value) of the device. (Default: Auto mode).

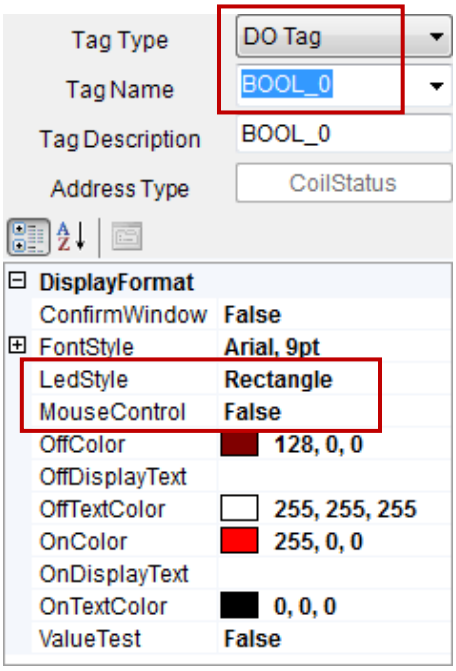



**Component - LED**

1. The red LED is used to display whether the scheduling is during "ON" periods.

| Devices | DO Tags |
|---|---|
| M1 to M3 | BOOL_0 to BOOL_2 |
| W1 | BOOL_3 |
| L1, L2 | BOOL_4, BOOL_6 |
| C1, C2 | BOOL_5, BOOL_7 |

So you can know the original status of the scheduling even if it is set to the Manual mode.

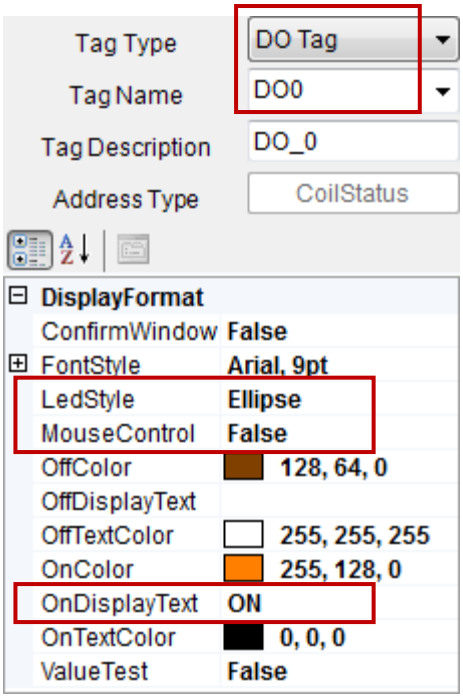





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2. The rest of LEDs are used to display the device status.

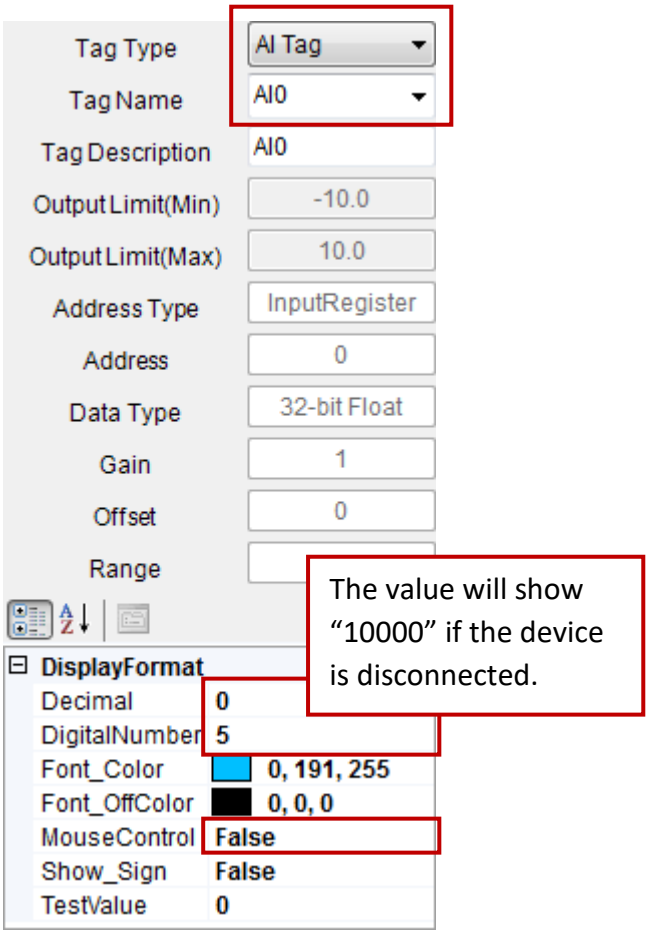
| Devices | DO Tags |
|---|---|
| M1 to M3 | DO_0 to DO_2 |
| W1 | DO_3 |
| L1, L2 | DO_4, DO_6 |
| C1, C2 | DO_5, DO_7 |

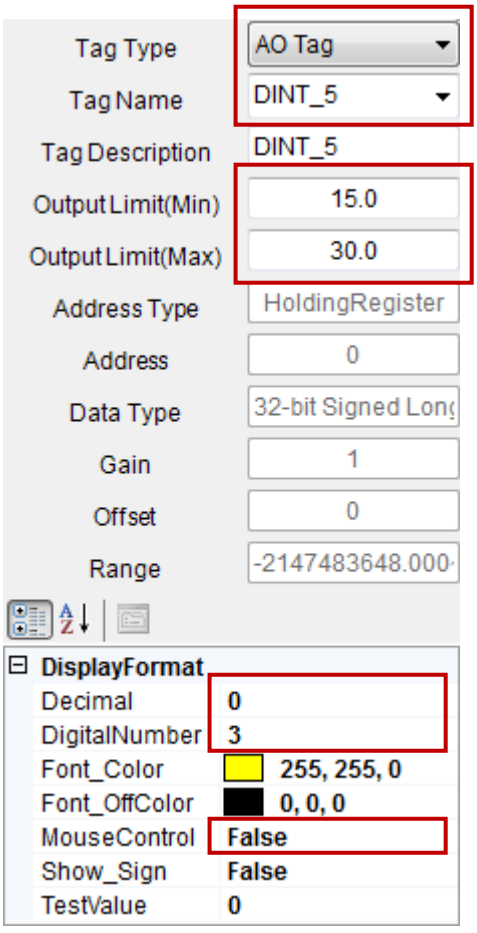



**Component - Seven Segment**

T1(S) and T2(S) are used to display the scheduled temperature.
T1(C) and T2(C) are used to display the indoor temperature.

| Devices | AO / AI Tag |
|---|---|
| T1(S), T2(S) | DINT_5, DINT_7 |
| T1(C), T2(C) | AI0, AI1 |



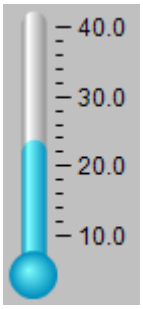


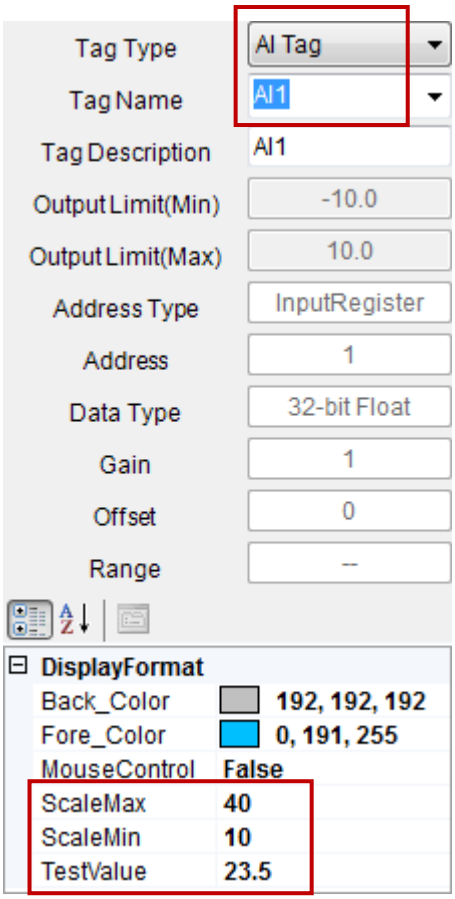

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## Component - Thermometer

T1(C) and T2(C) are used to display the current indoor temperature.

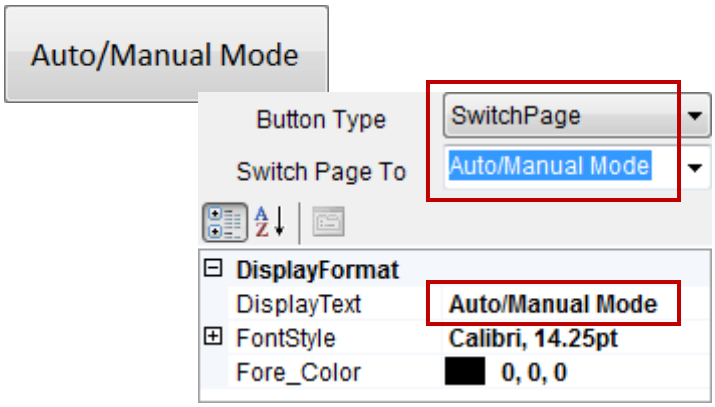
| Devices | AI Tags |
|---|---|
| T1(C), T2(C) | AI0, AI1 |



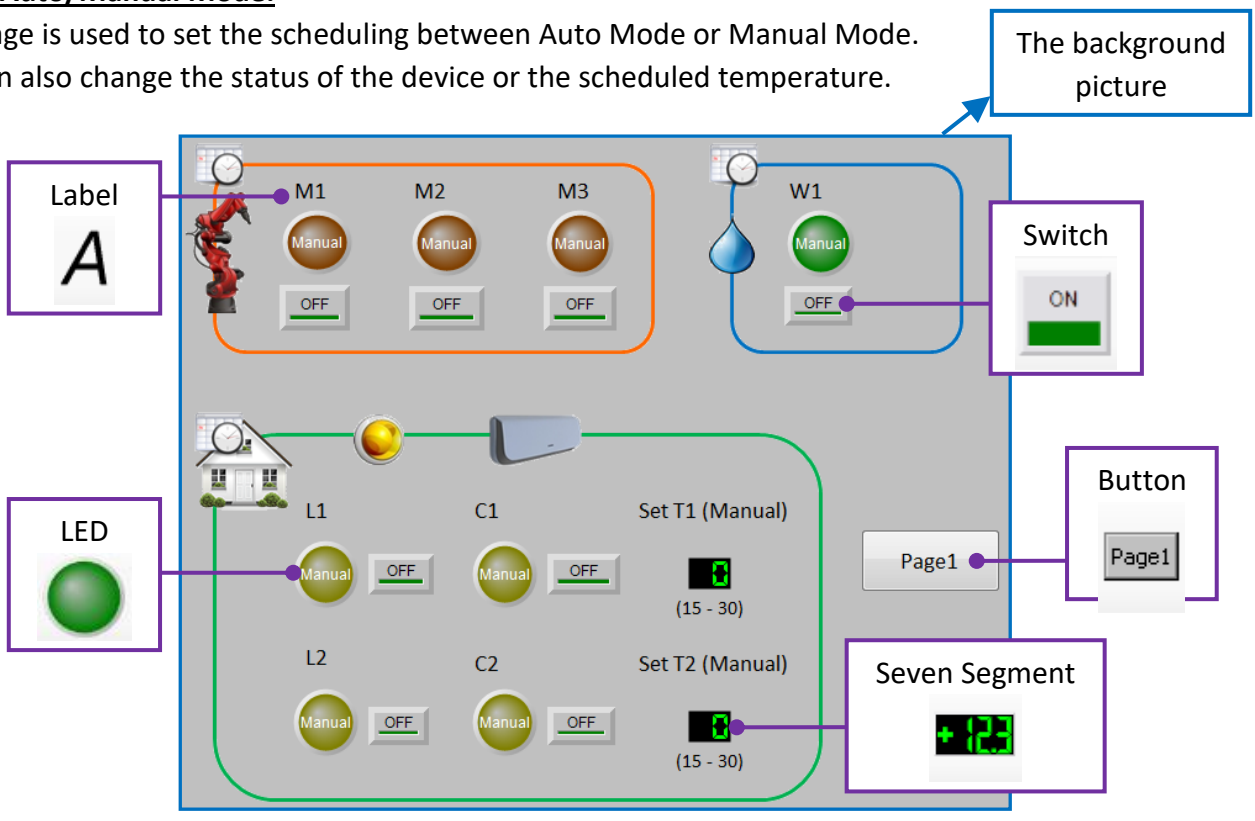

## Component - Button

The "Auto/Manual Mode" button is used to display the configuration page.




## Page - Auto/Manual Mode:

This page is used to set the scheduling between Auto Mode or Manual Mode. you can also change the status of the device or the scheduled temperature.






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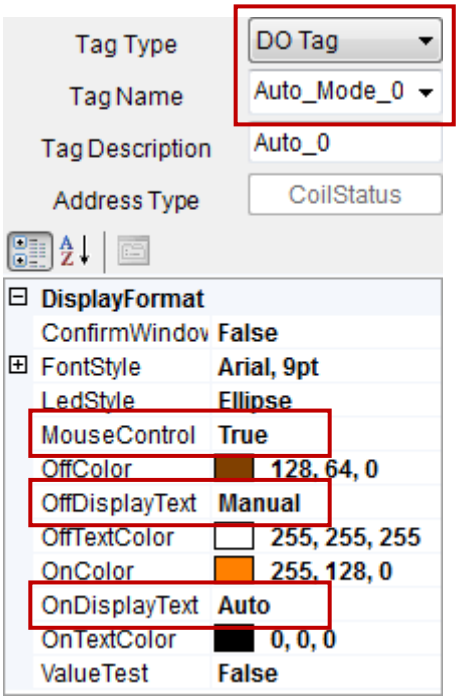
**Component - LED**

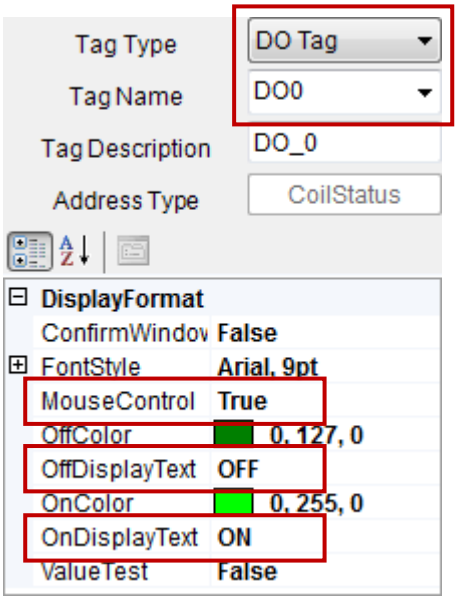
Used to set the scheduling as the Auto or Manual mode.

**Component - Switch**

In Manual mode, used to change the device status.

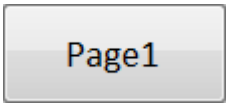
| Devices | DO Tags (LED) | DO Tags (Switch) |
|---|---|---|
| M1 to M3 | Auto_Mode_0 to Auto_Mode_2 | DO_0 to DO_2 |
| W1 | Auto_Mode_3 | DO_3 |
| L1, L2 | Auto_Mode_4, Auto_Mode_6 | DO_4, DO_6 |
| C1, C2 | Auto_Mode_5, Auto_Mode_7 | DO_5, DO_7 |

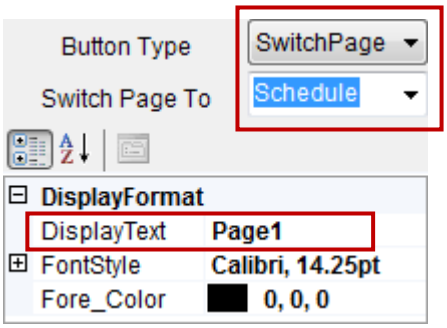



**Component - Button**

Used to go to the "Schedule" page.



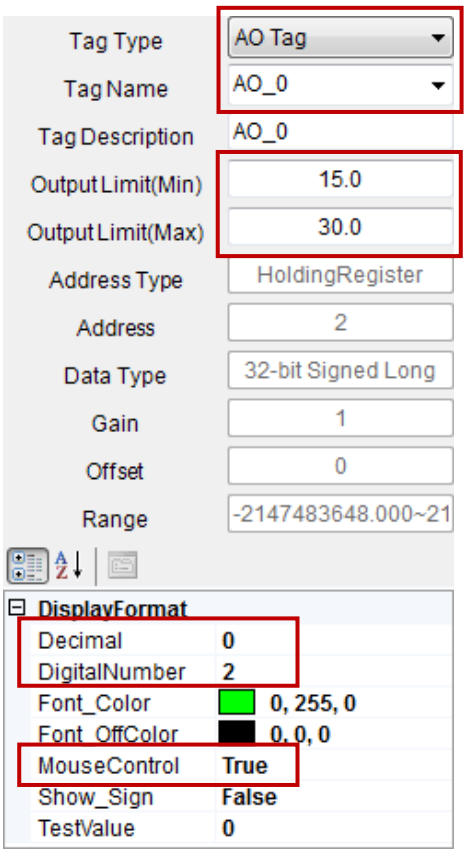



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**Component - Seven Segment**

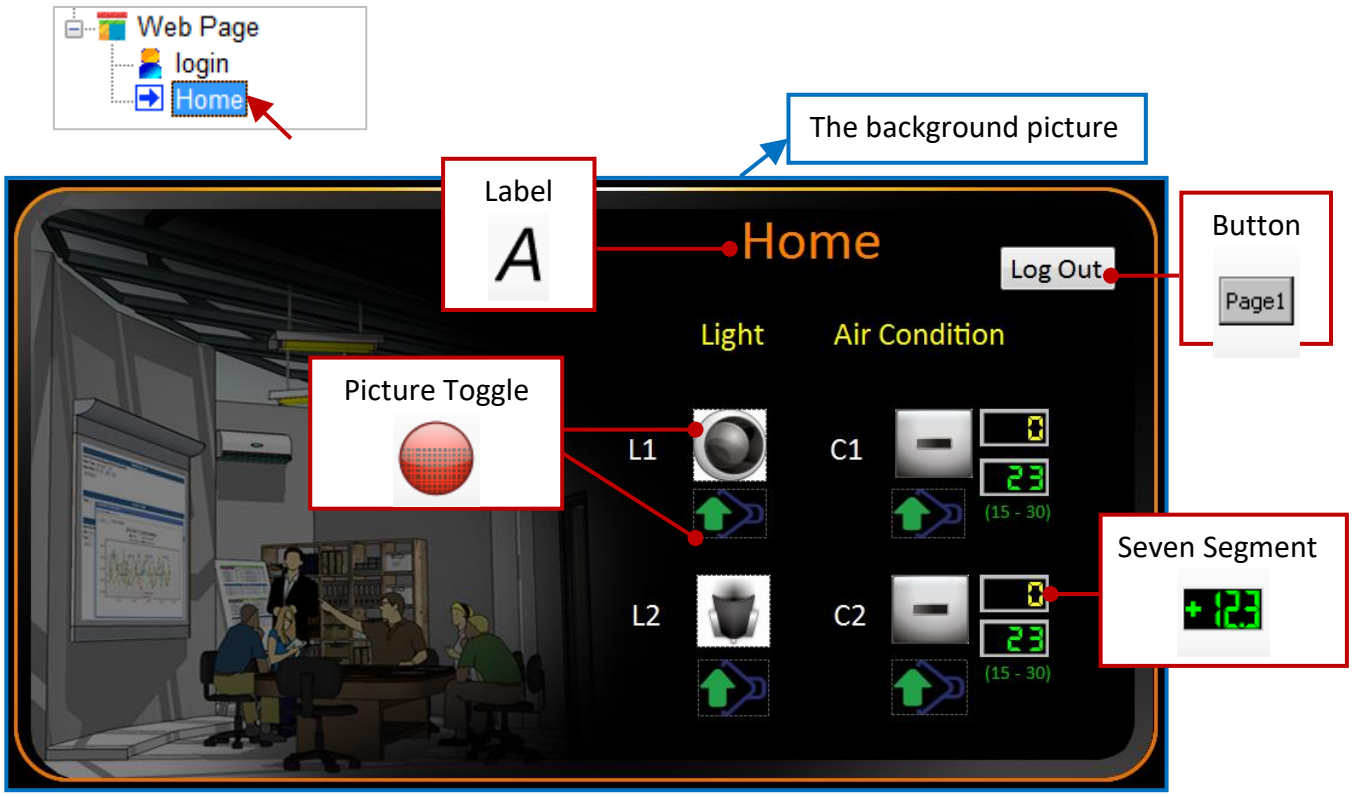
In Manual mode, used to change the scheduled temperature of the device.

| Devices | AO Tags |
|---|---|
| Set T1 | AO_0 |
| Set T2 | AO_1 |




### 3.3.5. Design the eLogger Web Page

This eLogger project includes two Web Pages called Login and Home. "Login" is the default page. The "Home" page can be used to remotely control the switch of lamps and air-conditioners also the scheduled temperature in home by logging to the Web Server HMI via the smart device, e.g., a smart phone, a tablet, or a laptop.



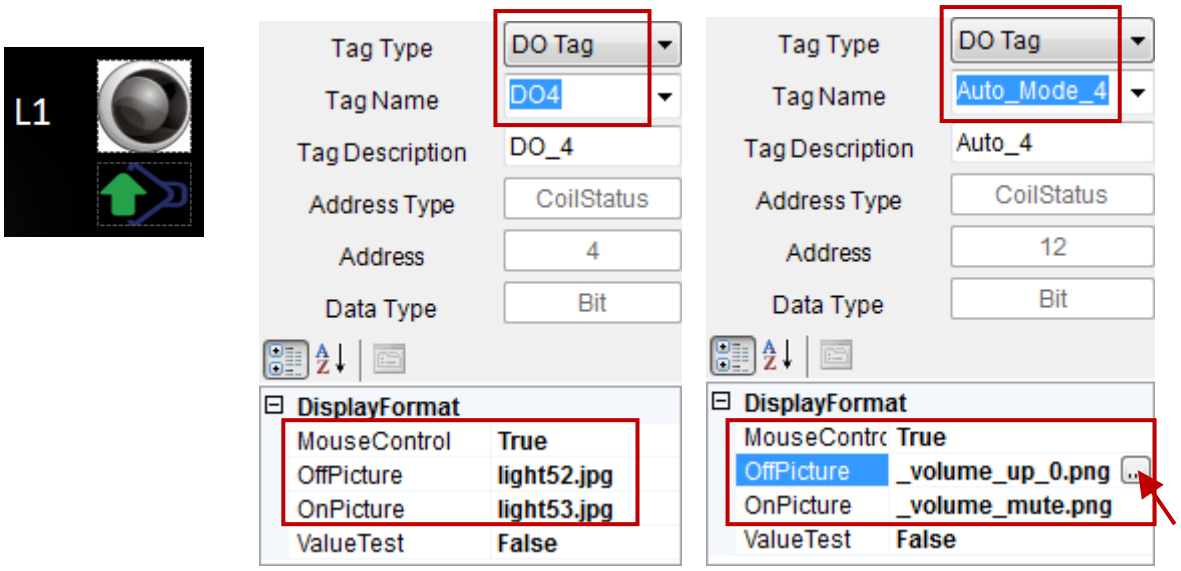



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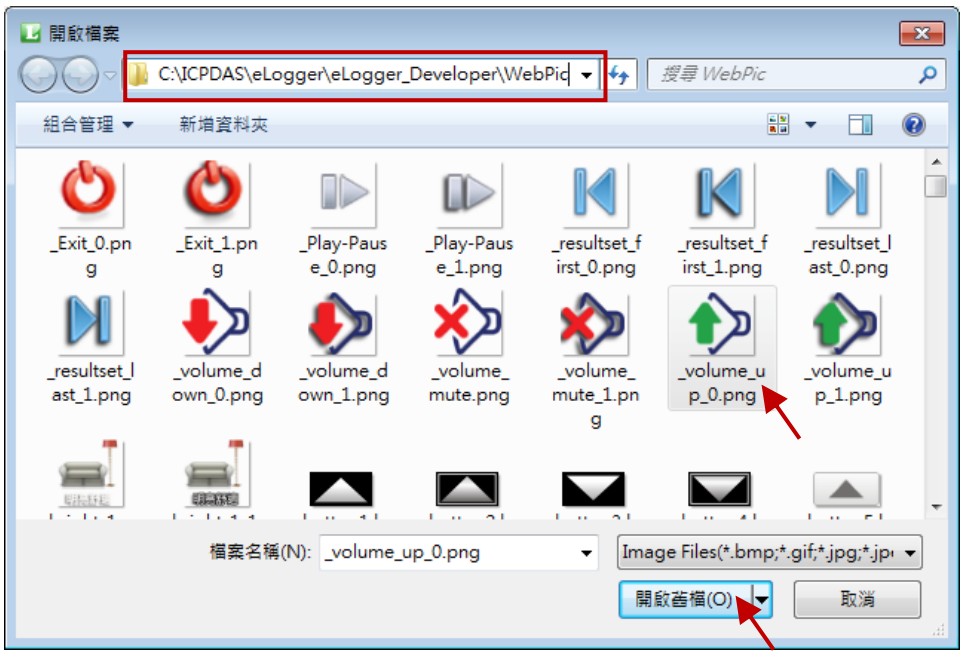
**Component - Picture Toggle**

Used to control the switch of lamps and air-conditioners in home.

| Lamps | DO Tags (LED) | Air-conditioners | DO Tags (LED) |
|---|---|---|---|
| L1 | DO_4, Auto_Mode_4 | C1 | DO_5, Auto_Mode_5 |
| L2 | DO_6, Auto_Mode_6 | C2 | DO_7, Auto_Mode_7 |




Click the "OffPicture" or the "OnPicture" button to choose an image in the eLogger.
(Location: C:\ICPDAS\eLogger\eLogger_Developer\WebPic)



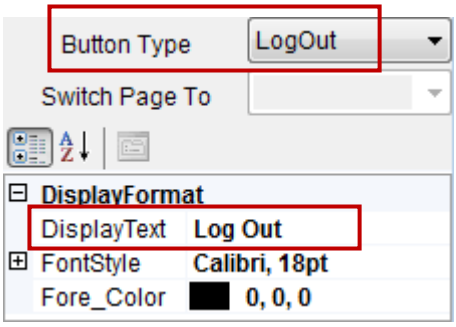



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**Component - Button**

Used to logout the "Home" page.

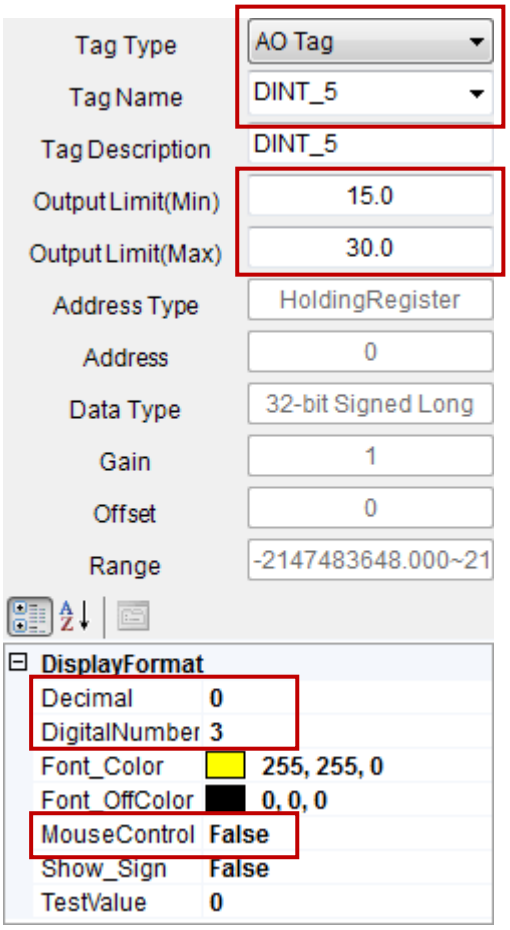


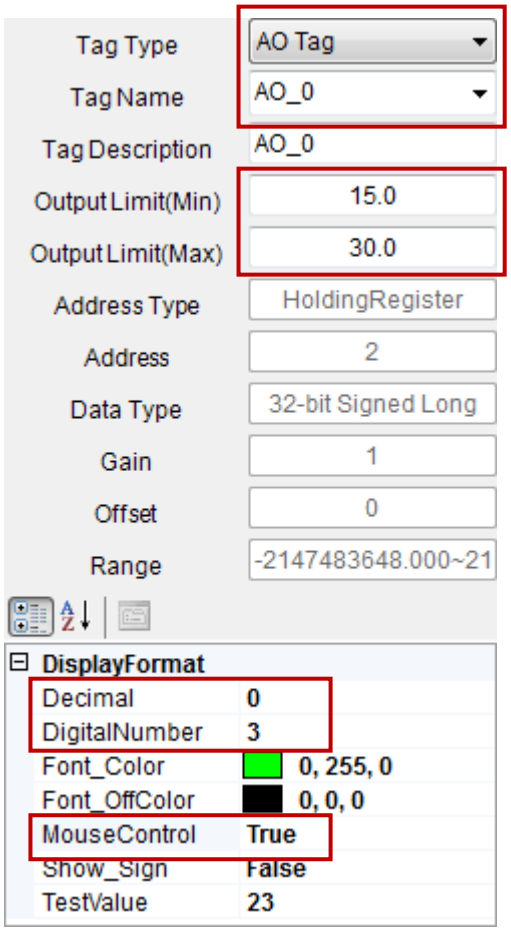




**Component - Seven Segment**

In Manual mode, used to change the scheduled temperature of the device.

| Devices | AO / AI Tag |
|---|---|
| T1(S), T2(S) | DINT_5, DINT_7 |
| T1(C), T2(C) | AI0, AI1 |





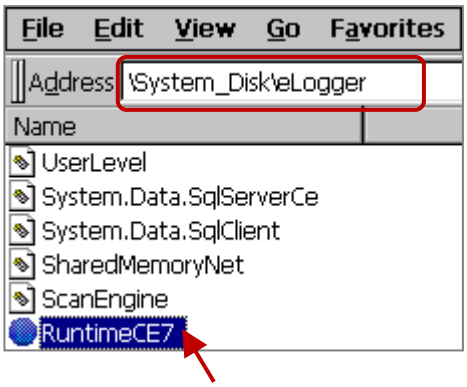

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### 3.3.6. Test the eLogger Project

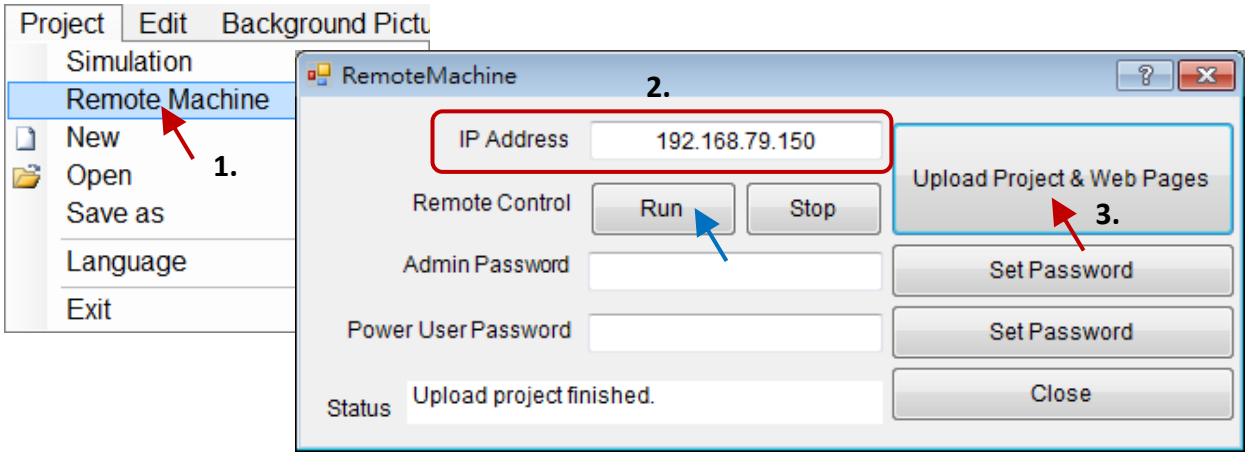
If you have not installed the eLogger Runtime on your PAC, see Chapter 2 of the Win-GRAF FAQ-018 for more details. Moreover, add the \System_Disk\eLogger**RuntimeCE7.exe** path in the Auto Execution screen of the PAC Utility. If the **RuntimeCE7.exe** is not activated, you cannot upload the eLogger project to the PAC.

Moreover, you can click My Device on PAC desktop and execute " **RuntimeCE7.exe"** in the \System_Disk\eLogger\.

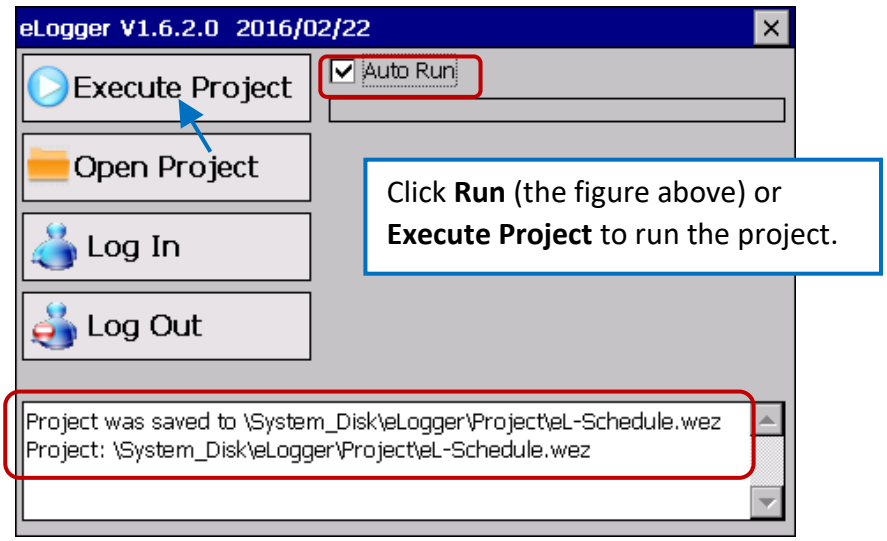



Next, run the Remote Machine in the eLogger Developer on PC, and enter the IP address of the PAC, and then click “Upload Project & Web Pages” to upload the project to the PAC. Note that it can not function well if the **RuntimeCE7.exe** is not activated.




If you upload successfully, the eLogger Runtime on PAC will display the project name (eL-Schedule.wez).




**Note:**

Recommended to set the HTTP root as **\System_Disk\www** in the Network screen of the PAC Utility. Then, copy the eLogger web folders to this folder.



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Test the Project (eL-Schedule.wez)

As you can see, the status and temperature of the device are displayed depends on the scheduled settings, and the indoor temperatures are 29 C and 28 C.

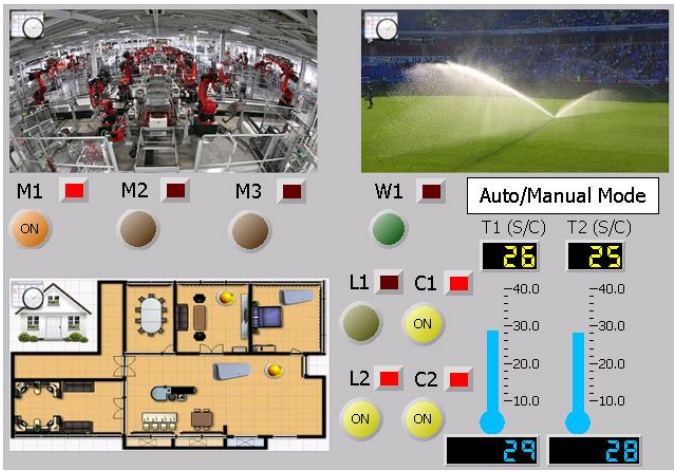
## Page

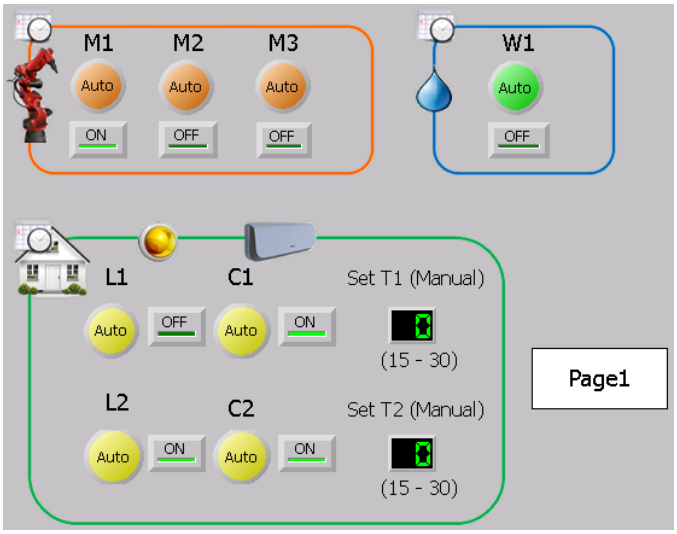
**Note:** The Schedule page is only to display the status of device.

1. You can connect the K-Type wire to the channel 0 (or 1) of the I-87018RW module, and check to see if the C1 (or C2) is set to ON and the T1 (or T2) is set to 28 when the indoor temperature is larger than 30 C.

2. Click the "Auto/Manual Mode" button to display the configuration screen.

3. You can click the "Auto" button to change it to Manual mode, and then click ON/OFF button to change the status or set a new scheduled temperature.

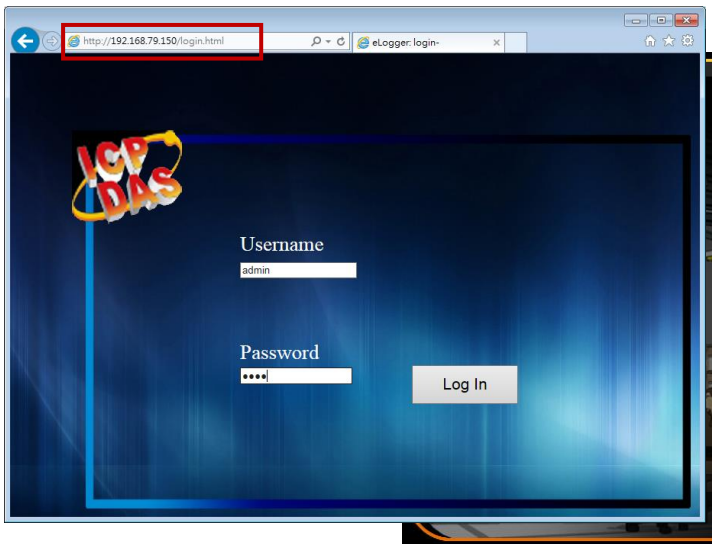


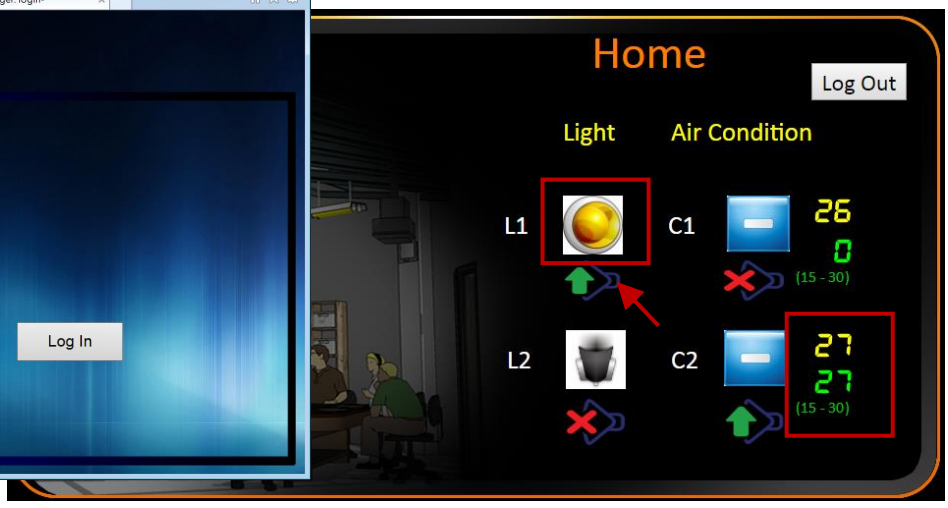




## Web Page

1. Type the IP address of the PAC on a web browser, and then enter the username and password (default: admin/0000) to login to the page.

2. Set to the manual scheduling (green arrow) and try to change the status and value.






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