Classification	☐ tDS ☐ tGW ☐ PETL/tET/tPET ☐ DS/PDS/PPDS ☑ TouchPAD ☐ I/O Card ☐ VXCCard ☐ VxComm ☐ Other				
Author	Albert	**Date**	2022-07-19	**NO.**	FAQ045

Q: How TouchPAD controls DALI devices through DGW-521?

Please use DCON Utility to confirm the setting value of DGW-521 module before use. Check the basic settings such as Baud rate and Data format, and make sure that Protocol is set to Modbus RTU mode.
Please refer to the Quick Start of DGW-521.
(https://www.icpdas.com/web/product/download/iiot/sensor/lc/document/quick_start/DGW-521_Quick_Start_en.pdf)

The following will introduce how to use C code and Ladder. Examples can be downloaded from the HMIWorks Demo (DALI).
(https://www.icpdas.com/en/download/show.php?num=1000)
Note : DGW function is supported in HMIWorks 2.30.08 or above.

C code

Please note that the settings of Baud rate, Data format and Modbus ID must be the same of the DGW-521, otherwise communication will fail.

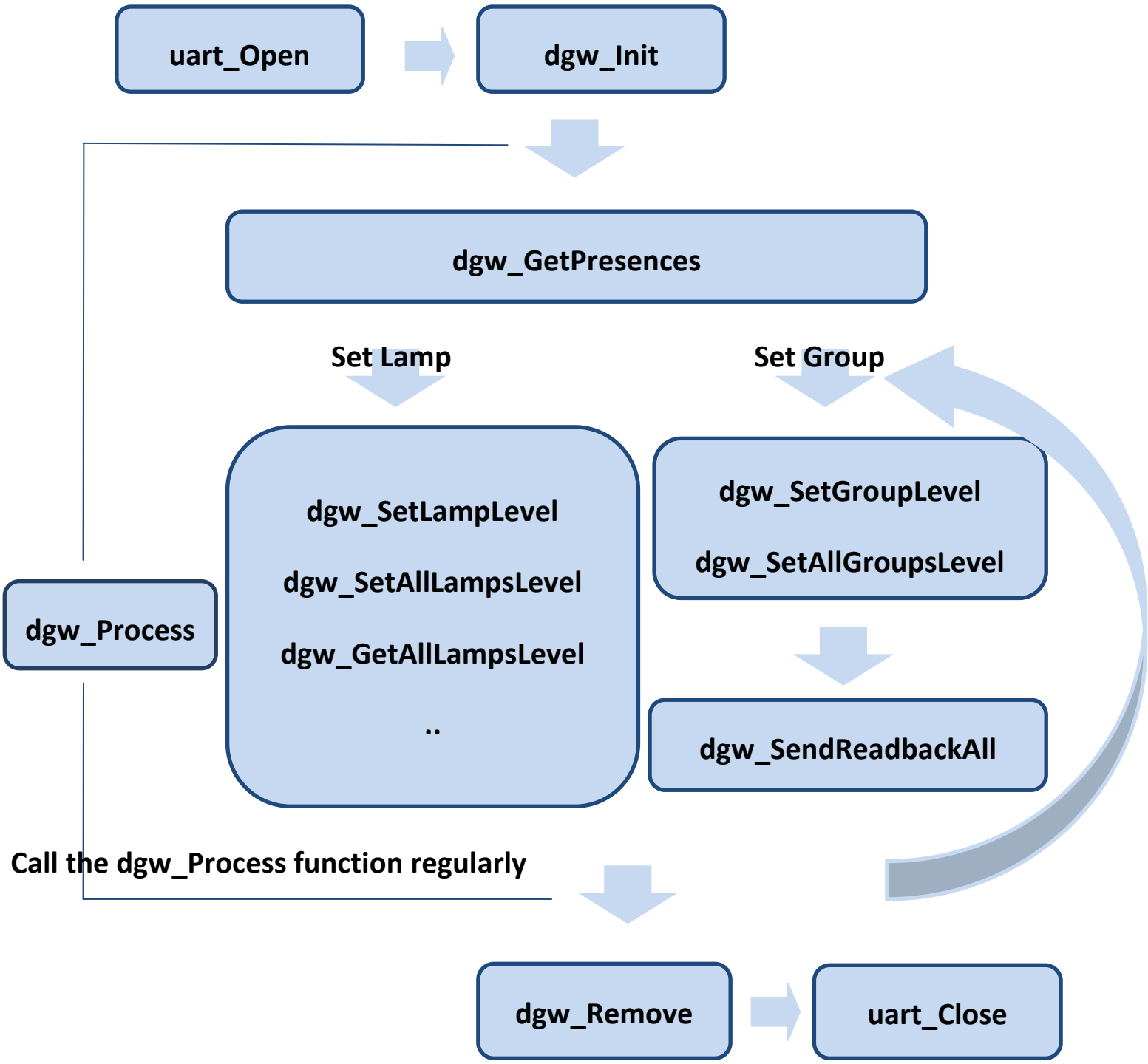
```
void Frame10211OnCreate()
{
  if ( hSerial == INVALID_HANDLE ) // first time initial
  {
    hSerial = uart_Open("COM1,9600,8N1");
    if ( hSerial != INVALID_HANDLE )
    {
      hDGW = dgw_Init(hSerial, 1, &dcb); // serial handle, modbus ID, DGW Control Block

      dgw_SetOperationMode(hDGW, DGW_AUTO_LAMPS_GROUPS);
    }
  }
}
```

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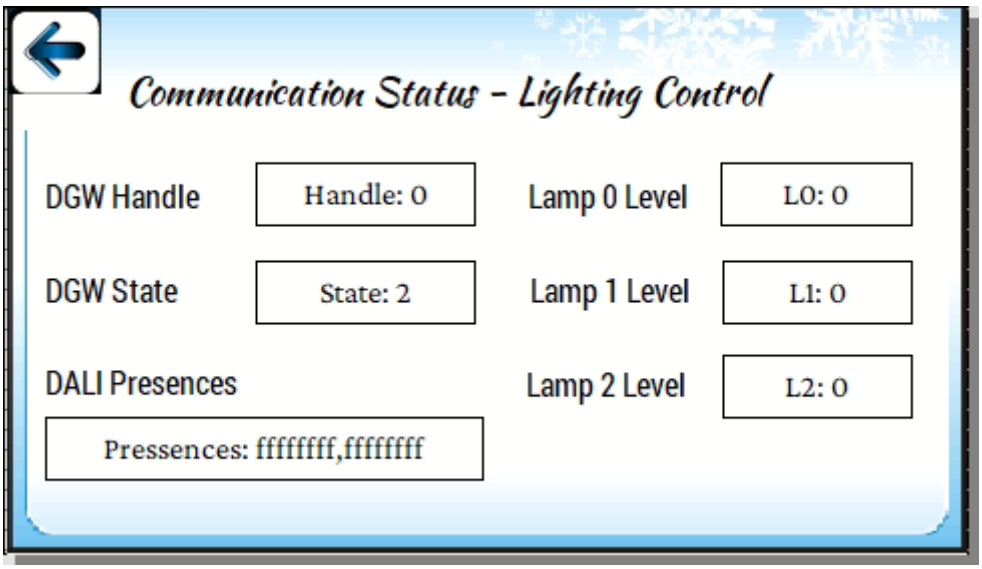
Flow Chart



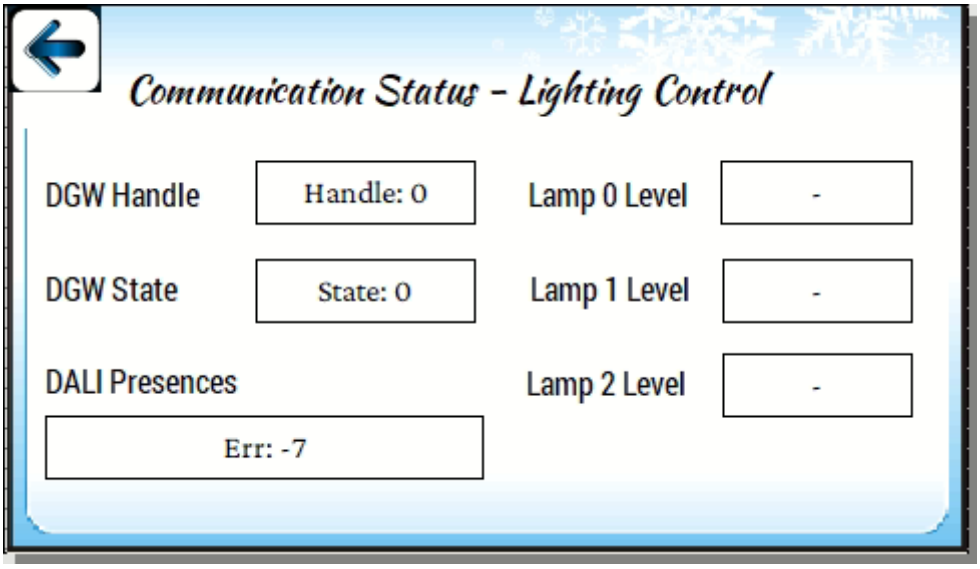
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After the connection is successful, you can see values such as Lamp.



If it fails, there will be an Error code.



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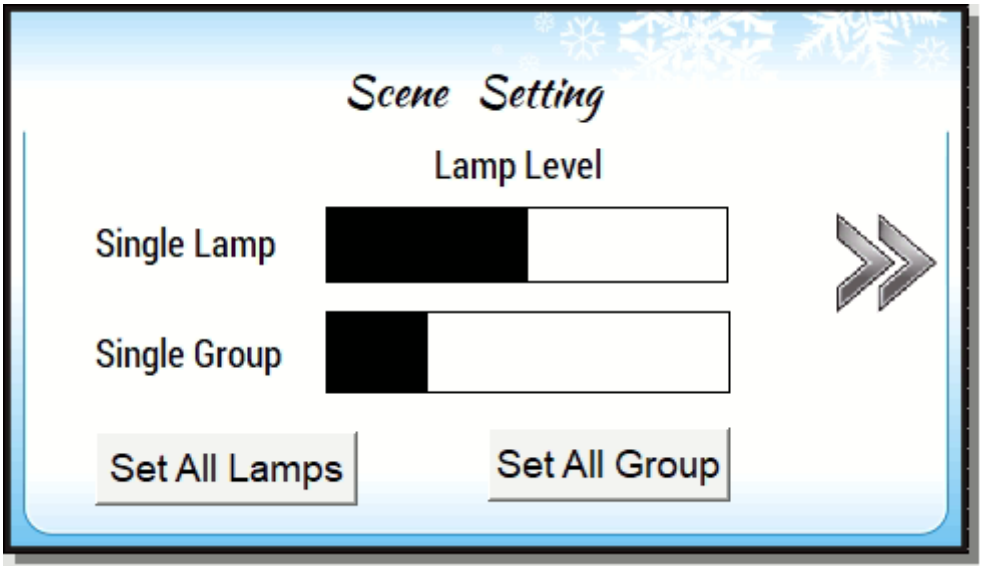
In control output of lamps, we provide four API functions; please download the example for detailed information.

// Set single lamp output level.
dgw_SetLampLevel(HANDLE hDGW, unsigned char address, unsigned char data)

// Set single group output level.
dgw_SetGroupLevel(HANDLE hDGW, unsigned char group, unsigned char data)

// Set all lamps output level.
dgw_SetAllLampsLevel(HANDLE hDGW, unsigned char *datalist)

// Set all groups output level.
dgw_SetAllGroupsLevel(HANDLE hDGW, unsigned char *datalist)



For more API functions, please refer to **HMIWorks API Reference** Chapter 15 "DGW-521 API"

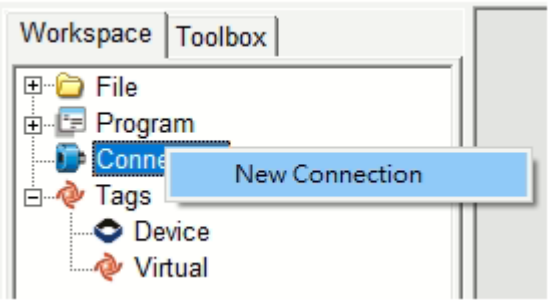
https://www.icpdas.com/en/download/show.php?num=958

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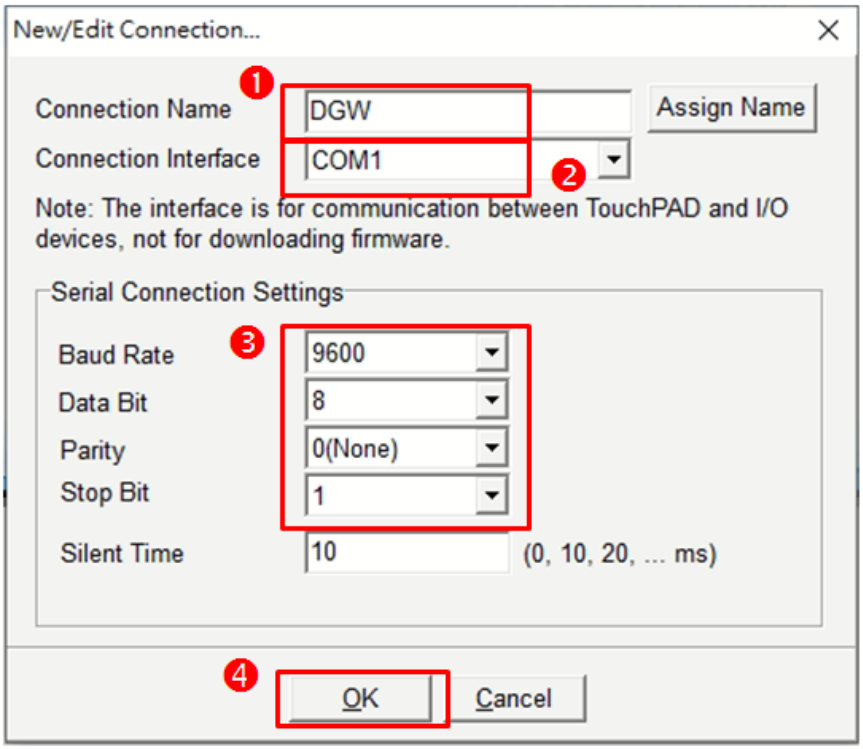
Ladder

Step 1: Right-click **Connection** in the Workspace and select **New Connection**.



Step 2: Set the connection to DGW-521 device information as follows:

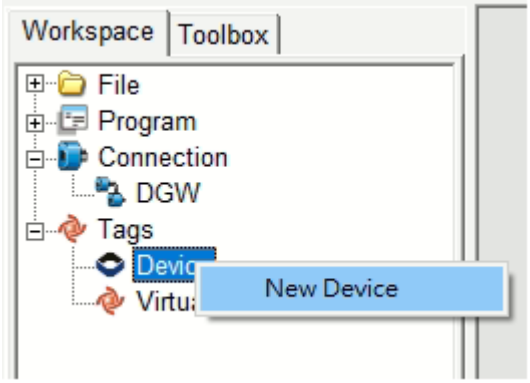
1. In the "**Connection Name**", enter the connection name (***e.g. DGW***).
2. In the "**Connection Interface**" drop-down menu, select the "**COM1**".
3. In the "**Serial Connection Setting**", select the same setting as your DGW-521 device.
4. Click the "**OK**" button to complete the connection setting.



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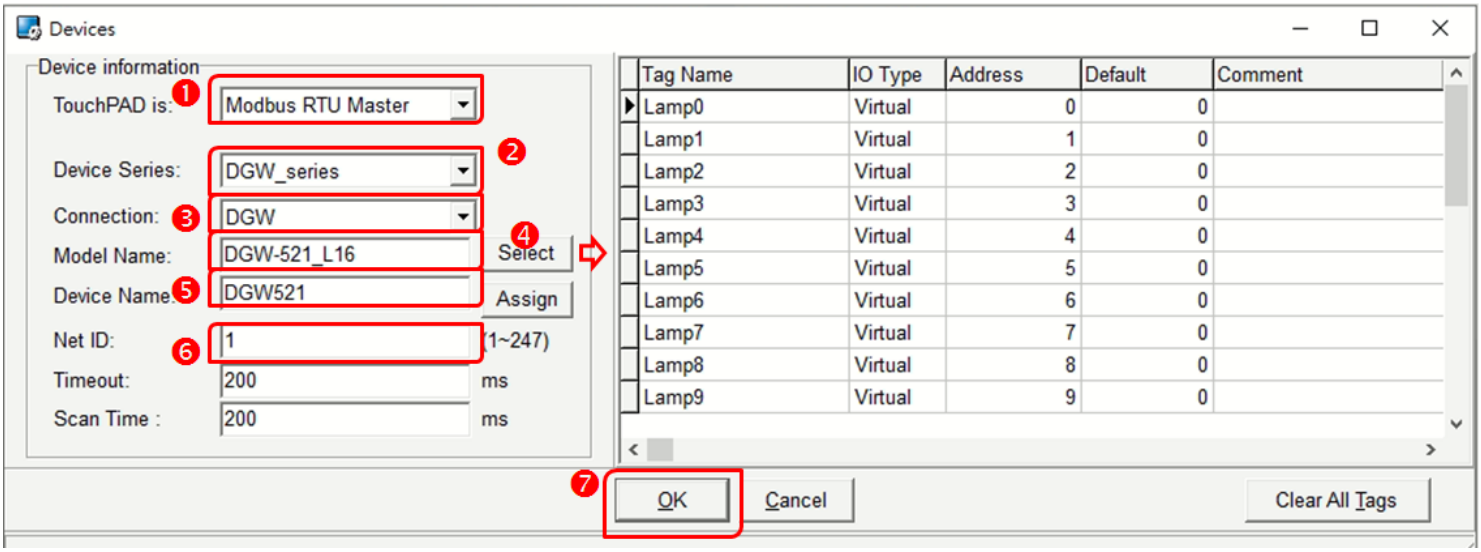
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Step 3: Right-click **Device** in Workspace and select **New Device**.



Step 4: Set the TouchPAD device information as follows:

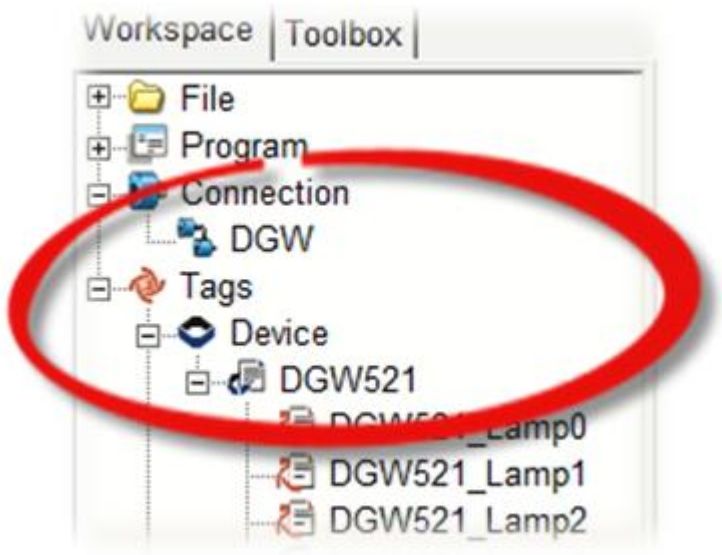
1. In the "**TouchPAD is**" drop-down menu, select the "**Modbus RTU Master**".
2. In the "**Device Series**" drop-down menu, select the "**DGW_series**".
3. In the "**Connection**" drop-down menu, select the ***DGW*** you set.
4. Select the number of Lamp/Group in "**Model Name**", and the corresponding Tag points will be automatically generated on the right side after selection.
5. In the "**Device Name**", enter the device name (***e.g. DGW521***).
6. In the "**Net ID**", enter the same settings as your DGW-521 device.
7. Click the "**OK**" button to finish building the device.



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Step 5: Complete the "***DGW***" connection and "***DGW521***" device creation.



Step 6: Added control objects.

1. Select "**Slider**" in "**Toolbox / Widget (Ctrl+2)**".
2. Click and pull out a Slider in the control screen design area.

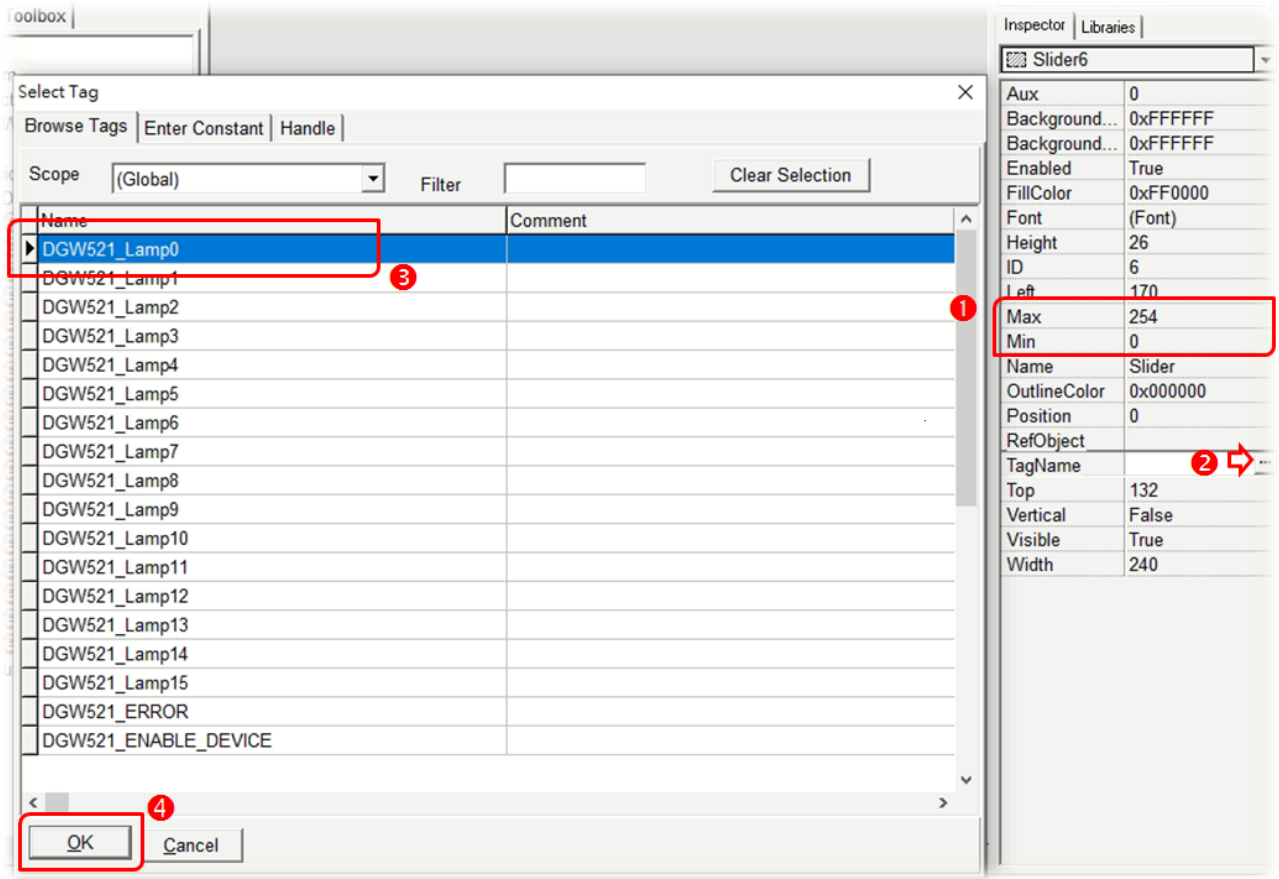


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Step 7: Set Slider object parameters.

1. Adjust the "**Max**" and "**Min**" of the Slider in the "**Inspector**".
2. Click “**TagName**” in “**Inspector**” to open “**Select Tag**” configuration dialog.
3. Select the Lamp tag to establish the connection between Slider and Tag.
4. Click the “**OK**” button to complete the setting.
5. And so on, create the remaining projects.



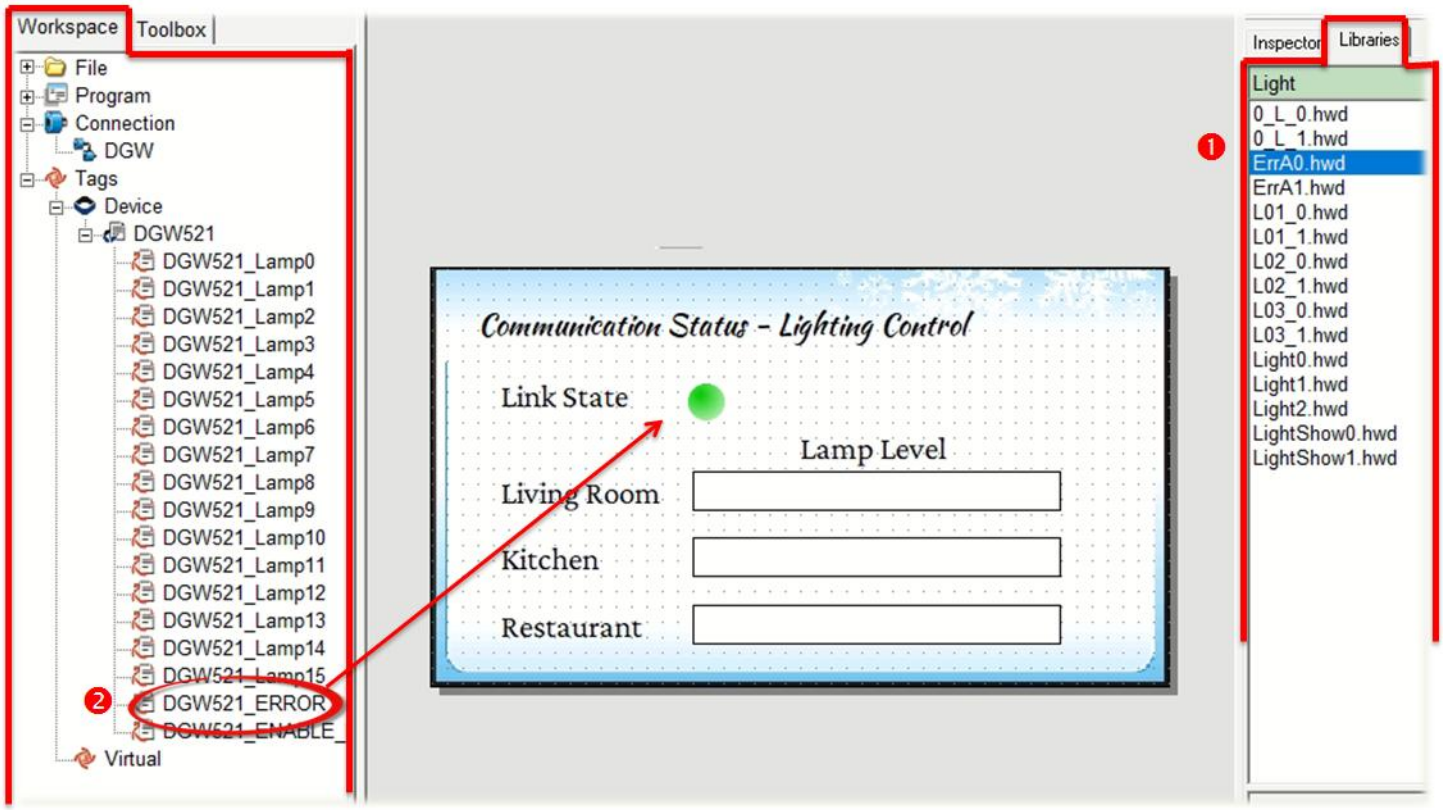
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Step 8: Create a connection light.

1. Select an **ERROR LED** icon in "**Libraries**"
2. Click the "**DGW521_ERROR**" item in the "**Workspace**" and drag it to the control screen design area.

The ERROR LED icon can be used to check whether the TouchPAD communicates with the DGW-521 successfully.



Step 9: Download the program to the TouchPAD module and connect to the DGW-521 module.

HMIWorks also provides some Function Blocks for advanced control.
Please refer to Chapter 3.3.4.9 "DGW-521 Group" in **HMIWorks User Manual**.

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