

Classification	□ tDS □ tGW		D PETL/tET/t	PET DS/PDS/PPC	DS/PDS/PPDS	
	□ I/O Card		□ VXCCard □ VxComm		C	l Other
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## **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.

(<u>https://www.icpdas.com/web/product/download/iiot/sensor/lc/document/quick\_start/DGW-521\_Quick\_Star</u> t\_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.

## <u>C code</u>

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 Frame102110nCreate()
{
    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);
        }
    }
}
```

## Flow Chart

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

Commu	nication Status	- Lighting Con	trol
DGW Handle	Handle: 0	Lamp 0 Level	L0: 0
DGW State	State: 2	Lamp 1 Level	L1: 0
DALI Presences		Lamp 2 Level	L2: 0
Pressences:	ffffffff,ffffffff		

If it fails, there will be an Error code.

Communication Status	- Lighting Cont	trol
DGW Handle Handle: 0	Lamp 0 Level	-
DGW State State: 0	Lamp 1 Level	-
DALI Presences	Lamp 2 Level	-
Err: -7		



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)

	Scene Setting	No. of the second se
	Lamp Level	
Single Lamp		
Single Group		12 IA
Set All Lamp	s Set All Group	

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



## <u>Ladder</u>

**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.

New/Edit Connection	×
Connection Name Connection Interface Note: The interface is to devices, not for downlo	DGW Assign Name COM1 for communication between TouchPAD and I/O pading firmware.
Baud Rate Data Bit Parity Stop Bit Silent Time	9600 8 0(None) 1 10 (0, 10, 20, ms)
4	<u>O</u> K <u>C</u> ancel



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.

Devices								— C	2	×
Device information	on		Γ	Tag Name	IO Type	Address	Default	Comment		^
TouchPAD is:	Modbus RTU Master	·	Ī	Lamp0	Virtual	0	0			_
				Lamp1	Virtual	1	0			
Device Series:	DGW_series	·		Lamp2	Virtual	2	0			
Connection:	DGW			Lamp3	Virtual	3	0			- 11
Model Name:	DGW-521   16	Select		Lamp4	Virtual	4	0			_
Nidder Marrie.			ŀ	Lamp5	Virtual	5	0			_
Device Name	UGW521	Assign	┢	Lamp6	Virtual	6	0			_
Net ID:	a [] <sup>1</sup>	(1~247)	┢	Lamp7	Virtual	7	0			
Timeout:	200	ms	┢	Lamp8	Virtual	8	0			_
Scan Time :	200	ms	ŀ	Lamp9	Virtual	9	0			
	]			<					:	>
		7		<u>o</u> k	<u>C</u> ancel			Clear All <u>T</u>	ags	]



**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.

Workspace Toolbox	
Drawing (Ctrl+1) Widget (Ctrl+2)	
Arrow	
TextPushButton	
Slider	
BitButton	Communication Status - Lighting Control
Label	Link State
RadioButton	Living Room
	Kitchen
	Kestaurant



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.

olbox					Inspector Librar	ies
					Slider6	
Select Tag				×	Aux	0
Browse Tags Friter Constant Ha	andle				Background	0xFFFFFF
Enter constant   Ha					Background	0xFFFFFF
Scope (Global)	▼ Filtor		Clear Selection	- 1	Enabled	True
1					FillColor	0xFF0000
Name		Comment			Font	(Font)
DGW521_Lamp0					Height	26
DGW521_Lamp1	<b>B</b>					170
DGW521_Lamp2				0	Max	254
DGW521_Lamp3					Min	0
DGW521 Lamp4					Name	Slider
DGW521 Lamp5					OutlineColor	0x000000
DGW521 Lamp6					Position	0
DGW521 Lamp7					_RefObject	
DGW521 Lamp8				- 11	TagName	
DGW521_Lamp9				- 11	Тор	132
DGW521_Lamp9				- 1	Vertical	False
				- 1	VISIDIe	True
DGW521_Lamp11				- 1	vvidtn	240
DGW521_Lamp12				- 1		
DGW521_Lamp13				- 1		
DGW521_Lamp14						
DGW521_Lamp15						
DGW521_ERROR						
DGW521_ENABLE_DEVICE						
				>		
<u>OK</u> <u>C</u> ancel						



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**.

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