# PAU01 Z-Wave Dongle Philio Z-Wave Utility Manual





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### 3. Abbreviations

Abbreviation	Explanation
NID	Network ID
RF	Radio Frequency
SDK	Software Development Kit
SIS	SUC ID Server
SUC	Static Update Controller

# 4. Introduction

The "Philio Z-Wave Utility" application is a tool for Philio RD testing, and also suitable for product line testing in factory.

The purpose of this manual is to help user familiar the functionality of the application, and operate the user interface.

This tool is for Z-Wave product, some concept of the Z-Wave network, or the specification of the Z-Wave command, please refer to the Z-Wave SDK first.

The follow subjects will describe these scopes:

- Installation
- Start
- Binding
- Report Form
- Z-Wave Command Function
- Consistent Test

# 5. Installation

#### **5.1. Install Dongle Driver**

The dongle need the PC driver.

Please extract the "ZW040x\_USB\_VCP\_PC\_Driver.zip". There is a uzb.inf file. Insert the dongle to the PC, in the first time, the PC will issue the driver can't found. You can observe the Control Panel  $\rightarrow$  System and Security  $\rightarrow$  System  $\rightarrow$  Hardware  $\rightarrow$  Device Manager



Click the "Device Manager".

Right Click the "Unknown device". And select "Update Driver Software..."



Click "Browse my computer for driver software".

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😡 🔋 Update Driver Software - Unknown Device	
How do you want to search for driver software?	
Search automatically for updated driver software	
Windows will search your computer and the Internet for the latest driver software	
for your device, unless you've disabled this feature in your device installation settings.	
Browse my computer for driver software	
Locate and install driver software manually.	
	Cancel

Fill the driver file location. And click "Next".



Select "Install this driver software anyway".

Ŋ	Windows can't verify the publisher of this driver software
	Don't install this driver software
	You should check your manufacturer's website for updated driver software for your device.
	Install this driver software anyway
	Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.

Wait a while.

Installing driver	software	
instanting univer	Jort Harca	_



🕞 🚊 Update Driver Software - UZB (COM3)	
Windows has successfully updated your driver software	
Windows has finished installing the driver software for this device:	
UZB	
	Close



### **5.2. Install Application**

Extract the "PhilioZWaveUtil.7z" to the folder whatever you want, but please don't install on the remote disk, it may cause some error. Insert the dongle into the PC USB socket. And then execute the "PhilioZWaveUtil.exe" to start the application.

Note: This tool is designed by .Net Framework, you need to install .Net Framework 4.0 before running the application. You can easily use the "Windows Update" to install that. Windows 7 already install .Net Framework in default.

## 6. Start

Insert the USB dongle, and execute the "PhilioZWaveUtil.exe" to start the application. If the application can't find the USB dongle, it will show the pop window, and click the OK button to close the application.



Figure 1 USB dongle not found

Normally, the application will read controller information from the USB dongle; you can see the progress bar is running.

Phillip Z-Wave Utility 2.2			(c) 8 <b></b>
Binding Function Consistent			
Controller Info			
Home ID:	Include	Learn	
Node ID:			
Primary:	Exclude		
Secondary:			
SIS Exist:			
SUC:	Laading		
SUC ID:			
COM Port:			
Abort	Reload	Reset	
Device List	1	Message	

Figure 2 Reading the information of the controller

After finish, it will show the basic information of the dongle.

• Home ID:

The home ID of the controller.

• Node ID:

The node ID of the controller. If the controller is secondary controller, this value may not be 1.

• Primary:

Is the dongle is the primary controller?

- Secondary: Is the dongle is the secondary controller?
- SIS Exist: Is the Z-Wave network exist the SIS?
- SUC: Is this dongle is the SUC?
- SUC ID:

If the SUC is exist, which node ID is.

• COM Port:

The application is using which COM port to communicate with USB dongle.

Philip Z-Wave Utility 21	2			(C) (B) (C)
Binding Function	Consistent			
Controller Info		and the second		
Home ID:	F4028313	Include	Learn	
Node ID:	1	in the second second		
Primary:	0	Exclude		
Secondary:				
SIS Exist:				
SUC:				
SUC ID:	0			
COM Port:	COM23			
Abort		Reload	Reset	
Device List			Message	

Figure 3 Display the basic information of the controller

### 7. Binding

This function tab is for user to maintain the Z-Wave network, include or remove a device from the network, or add dongle to the other network.

Philo Z-Ward	Unitey 2.2	Currain							tois - S
Controller	Info								
Home	e ID:	F40283	13	2	Ind	lude		Learn	
Node	e ID:	1				hude.			
Prin	nary:	0			Exc	Doe			
Secon	dary:	•							
SIS	Exist:								
1	SUC:		1.00						
SU	C ID:	0							
COM	Port:	COM23							
3	Abort			Re	beok			Reset	
Device List							Message		
A NID	Туре		Alias		List	en	5		
255	9040K CH	Norder 0.0	Bradcart		Ves				
	1								
_	_	_	_	_	_	_			

Figure 4 Binding page

The binding page has 5 parts:

1. Controller Info: The information of the controller. 2. Main Function:

Include or exclude the device from the network, and also can add the dongle to the other network.

- 3. Controller Function: User can abort the operation, reload or reset the information of the controller.
- Device List:
   Display the device information of the controller.
- Message: Display the operation result or the status.

#### **7.1. Include Device**

Add a Z-Wave device to the Z-Wave network, the controller should include it. But before you execute the include operation, please make sure that device is not be included to other network. If it is, please operate the exclude procedure first.

To execute the include operation; please press the "Include" button. The all buttons of the main function part will be disabled. And the controller will into to inclusion mode. If you want to abort the include operation, please press the "Abort" button in the controller function part.

Philip Z-Wave Utility 2.2				0 8 00
Binding Function	Consistent			
Controller Info Home ID: Node ID: Primary: Secondary: SIS Exist: SUC: SUC ID: COM Port:	F4028313 1 2 2 2 2 0 COM23	Include Exclude	Learn	
Abort		Reload	Reset	
Device List		,	fessage	
NID Type	Alias	Listen		
001 State Con	troller 8.0 Controller	Yes		
255	Broadcast	Yes		

Figure 5 Controller into inclusion mode

Now press the learning key on the device, usually the Z-Wave devices made from Philio, press the learning key three times the device will into the learn mode. If the controller got that message, the UI will show a progress bar, the dongle will query some information from the device.

Philo 2/Wave Utility 2.2			
Binding Function Consistent Controller Info Home ID: F4028313 Node ID: 1 Primary: Secondary: SIS Exist: SUC: SUC: SUC: 0	Exclude Exclude	Learn	Þ
COM Port: COM23 Abort	Reload	Reset	
Device List		Message	
	Listen		
NID Type Alias			
NID Type Alias     O01 State Controler 6.0 Control	r Yes		

Figure 6 Query the information from the device

After all done, the all buttons of the main function part will recover, and in the device list part will add a new device record. The message part will show a new device was added, and which node id it is.

g phi	ilio Z-Wave Utility 2.2								(C) (0
Bink	ding Function ntroller Info Home ID: Node ID:	F40283	ent 13	Inc	lude		Learn	•	
	Secondary: SIS Exist: SUC: SUC ID: COM Port:	<ul> <li>Q</li> <li>Q</li></ul>							Þ
	Abort			Reload	1	1	Reset	]	
De	vice List					Message			
	NID Type		Alias	List	en				
	001 State Co	traffer (0.5	Controller	Yes					
	006 Routing S	lave 3.41	P5M02	No					
-	255	_	Broadcast	Yes	in the second second				
							De	evice added. NID	16

Figure 7 Include a new device

PS: In the including procedure, you may saw the "Report Form" pop up. More information of the "Report Form", please refer to the "8 Report Form".

#### **7.2. Exclude Device**

Remove the Z-Wave device from the Z-Wave network, the controller should exclude it.

To execute the exclusion operation, please press the "Exclude" button. The all buttons of the main function part will be disabled. And the controller will into to the exclusion mode. If you want to abort the exclude operation, please press the "Abort" button in the controller function part.



Figure 8 Controller into exclusion mode

Now remove the device from the controller, press the learning key three times. If the controller got the message, the controller will remove it. The all buttons of the main function part will recover, and in the device list part will remove that device record. The message part will show a device was removed, and which node id it is.

Philip Z-Wave Utility	2.2							0800
Binding Function	on Consist	ent						
Controller Info								
Home ID:	F40283	13	Ind	lude		Learn		
Node ID:	1		_		_			
Primary	0		Exc	lude				
Secondary								
SIS Exist								
SUC								
SUC ID:	0							
COM Port	COM23							
Abo	rt		Reload		-	Reset		
Device List				1	Message			
NID Typ	e	Alias	List	en				
001 State	Controller (1.5	Controler	Yes					
255		proadcast	Yes					
				E F		Devi	ice removed, NID:6	

Figure 9 Exclude a device

### 8. Report Form

The "Report Form" will show up, when the dongle receive the report from the other devices. For instance, you send a "Basic Get" command to the device, if the device response the "Basic Report" to the dongle, that report will be show up in the "Report Form".

2013-06-19 19:03:27.653 Sen	sor Multilevel Report ID:6	1
Sensor Multilevel Re	eport 19:03:27 - 19:0	6:51 2
Report		
Sensor Type:	Temperature (v1	.)
Scale:	Fahrenheit(F)	
Precision:	0	3
Data Size:	2 Bytes	
Data <u>V</u> alue:	66	
Cours Los	d	Class 4

Figure 10 Report Form

There are 4 parts in the "Report Form".

1. History Report:

It is a drop down list box, It will display a list to record the report commands, those were received by the dongle. And you can click the old report in the list; it will show the content of that report.

2. Report Name and Time:

This part will display the report is belong to which Z-Wave command class. And the time of receive the report. You can see there are two time in this part, the second time it the time of now, the last number is the discrepancy seconds of these two times.

3. Content:

The content of the report.

4. Operation Buttons:

You can save, reload or clear the history report. And also can close the "Report Form".

Note: When you load the report from the saved file, that history report will display in a new "Report Form" window.

# 9. Z-Wave Command Function

You can send out the Z-Wave command by this function.

De	rvice List	Bat	sic Cont	lor		Control Panel				
	NID Alias		On	Off	2	Send instantly.	Enable Route	_		
	007 19902	Su	pport C	ommands		Get				
	255 Broadcast		Code	- Command	-	No arguments.				
			30	Sensor Bnary						
			31	Sensor Multilevel						
			70	Configuration						
			72	Manufacturer Specific						
			80	Bettery						
		84 Viake Up								
			85	Association	_					
	la la companya 📕 📕	86		Vesion						
		Sp	ecial Co	mmands	3					
			Code	Command	-			Γ.		
		1.	20	Fasc	-					
			88	Proprietary	-			-		
			91	Manufacturer Proprietary		Battani	Clear Carry	4		

Figure 11 Function page

There are 5 parts in this page:

1. Device List:

Display the node of the controller.

- 2. Basic Control: Quick to send out the basic set command, On or Off.
- Support Commands: List the supported commands of the device that you selected in the device list.
- Special Commands: Some commands always can send, no mater the device is supported or not.

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5. Control Panel:

Setting the arguments of the command, and send it out.

#### 9.1. How to Send Command

First select the device that you want to send the command to it.

Note: The NID: 255 is for broadcast.

Binding Function Consist	tent									
Device List	Ba	sic Con	trol	Control Panel						
NID Alias	E	00	04	Send instantly. Enable Route						
001 00000	_			Cat						
008 P9HI2	Su	pport C	ommands	Ger						
Sectored 33C	4 J	Code	< Command	No arguments.						
		30	Sensor Briary							
		31	Sensor Multilevel	1						
		70	Configuration							
		72	Manufacturer Specific							
		80	Battery .							
		84	Vilake Up							
		85	Association							
		86	Vesion							
	Sp	ecial Co	ommands							
		Code	Command							
	•	20	Basic							
		88	Proprietary							
		91	Hanufacturer Proprietary	10000						
		FE	Expert Free Command	Battery	Clear	Send				

Figure 12 Select the device

Select the command that you want to send.

line	sing Function Consister	¢					
De	vice List	Ba	sic Cont	lot	Control Panel		
	NID Alies		On	Off	Send instantly.	🗵 Enable R	oute
	CO3 Fires	Su	ooort C	ommends	Get		
	255 Intelant		Code	- Command	No arguments.		
			30	Sensor Brary			
			31	Sensor Multilevel	-		
			70 computation				
			72	And a second second			
			84	WSRA Up			
			85	Autocaption			
			86	74/801			
		Sp	ecial Co	mmands			
			Code	Command	1		
			20	fland;			
			88	Proprietary			
			91	Hanufacture: Proprietary	1		
			RE	Dipert Free Command	Battery	Clear	Send

Figure 13 Select the command

Before you send out the command, you must make sure the Z-Wave device is in sleep mode or not. If the device is sleeping, it won't receive any command. Usually you can press some button to wake up the device.

At the top of control panel, there are two options. First one is "Send Instantly", if the device is awake, you can check this option, after you click the send button, the command will send to the device instantly, otherwise, please don't check it. And after you click the send button, the application will put the command into the queue, wait the device to wake up, or got the node information from that device. When it happen, the application will send out the command, those in the queue.

Another option is "Enable Route", if this option be checked, the command will be sending by the route table path. That means the command maybe send to other node first, and pass to more than one node, at the end to the destination node. Otherwise, the command will send directly to the destination node.



#### Figure 14 Check the options

Select the command type that you want to send, and fill the arguments. Each command has define different arguments, Please refer to the Z-Wave SDK to get more detail specification.

Some command type there is a number in the head that means the version of that command type. 2 means version 2.

Device List	0a	sic Con	forol		Control Panel					
NID Alies		00		08	2 80	od iosta	with a	E. Frahle	Route	
001 Controller		-011		Sec.	Cat	Sec	Canab	Sec. Car		
008 Hores	Support Commands		1980		- waters	- collected and				
255 treadout		Code	- Command		Notify Node:			0	(1~255)	
		30	Sensor Brian							
		31 14		Sensor Hutlievel		Wake Up Interval:				
		70	Configuration Renufacturer Specific					(4 - 1477)	(222)	
		72								
	1.1	80 Atmay 9 24 Worke Ma								
		85	Autorigities							
		85	1949000							
	Sp	Special Commands								
		88	Proprietary	1000 Carlos C		_				
		91	Manufacture:	Proprietary	10.44	1		Classe	Beerl	
	1000	1.2	Digent Press	Communitation	Weer Up			Ciear Siend		

Figure 15 Select the command type

At the end, click the send button to send out the command. Some command types will response the report. So the "Report Form" will pop up. please refer to the "8 Report Form".

#### **10.** Consistent Test

This page is for test the RF command is send to the device correctly.

e Phili	io Z-Wave Utility 2.2		
Bind	ing Function Consistent		
Dev	rice List	Manual	Settings Start
	NID Alias		
	001 Controller	Real and the second	
•	008 PSHI2		
	255 Broadcast		

Figure 16 Consistent Test Page

You can do some settings by press the "settings" button.

	NOP		
BASIC Value:	O On	Max	Off
Interval	80	ms	
Repeat	100		

Figure 17 Consistent Setting

You can choose send the NOP command or the basic command. The interval field is for setting the interval time between each command. The repeat field is for setting how many commands will be sent.

Command:	BASIC_SI	ET
BASIC Value:	© On	Max      Off
Interval	80	ms
Repeat	100	

Figure 18 Using the basic command

If you choose the basic command, you also can choose the basic value.

- On: 255
- Max: 99
- Off: 0

Click the "start" button to start the testing. There are two way to trigger the consistent test. One is let the device send out the NIF(Node Information), another is select the device from the left side "Device List", and the presss the "Manual" button. When the consistent test start, the controller will

consistently to send the command to the device. And also calculate the count of the sent command and the response acknowledge.

e ph	ilio Z-Weve	Unliny 2.2								0
Bin	ding Fi	unction Consistent								
De	vice Lis		Manual						Settings	Stop
	NID	Alias							ge	
	001	Controller								
۰.	008	P5H12								
	255	Broadcant								
			1.							
				Canada.	400	A 18.1	4.000	 A AA AJ		

Figure 19 Start testing

### **11. Specification**

Power by DC 5V. Signal (Frequency): 868.40 MHz, 869.85 MHz(EU), 908.40 MHz, 916.00 MHz(US), 922~927 MHz(JP/TW), 921.40 MHz, 919.80 MHz(ANZ), 869.00 MHz(RU), 865.20 MHz(IN), 916.00 MHz(IL),

Range:

Minimum 30 meters indoor,

70 meters outdoor line of sight.

Operating Temperature: -10°C ~ 40°C

For indoor use only.

Specifications subject to change without notice due to continuing product improvement.



#### Disposal

This marking indicates that this product should not be disposed with
other household wastes throughout the EU. To prevent possible harm to
the environment or human health from uncontrolled waste disposal,
recycle it responsibly to promote the sustainable reuse of material
resources. To return your used device, please use the return and
collection systems or contact the retailer where the product was
purchased. They can take this product for environmental safe recycling.

**Company of License Holder : Philio Technology Corporation** 

Address of License Holder : 8F.,No.653-2,Zhongzheng Rd., Xinzhuang Dist., New Taipei City 24257,Taiwan(R.O.C)

#### **FCC Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

#### Warning

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and wellbeing.

When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.