PHPoC P5H-155 Programmable IoT Gateway Device User Manual

PHPoC

PHPoC P5H-155 Programmable IoT Gateway Device

Overview

The P5H-155 is a programmable device that provides Ethernet function. Because this product equips 2 digital output ports, you can remotely control two relays via network. Programming on this product requires the use of PHPoC (PHP on Chip). PHPoC is quite similar in syntax to PHP, the general-purpose scripting language. Therefore, anyone with experience in programming can easily learn and use it. Although PHPoC and PHP are quite similar in syntax, they are clearly different programming languages. Refer to the PHPoC Language Reference and PHPoC vs PHP for detailed information.

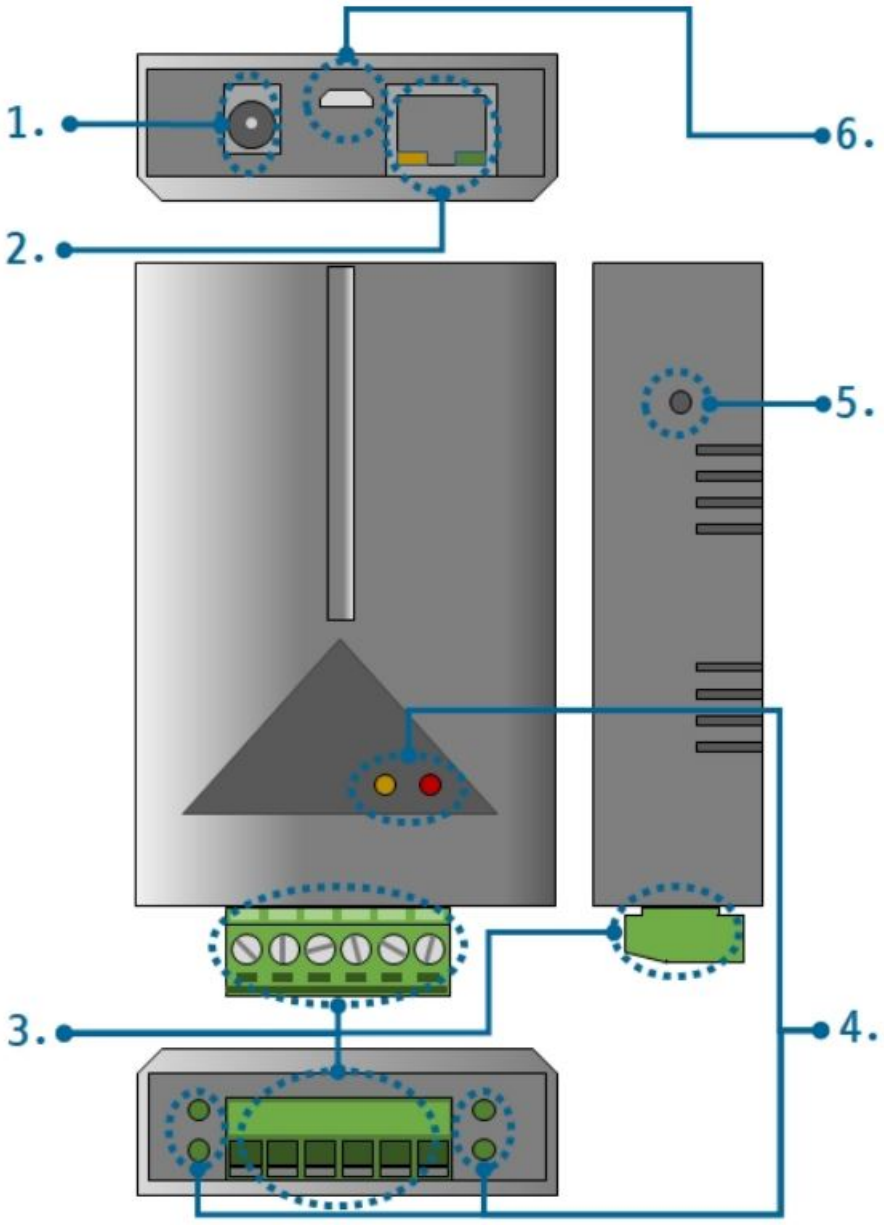
Features

- self-developed PHPoC interpreter
- simple development environment via USB
- 10/100Mbps Ethernet
- 2 digital output ports
- 2 user-defined LEDs
- self-developed TCP/IP stacks
- Web Server
- WebSocket, TLS
- various libraries (Email, DNS, MySQL and Etc.)
- dedicated development tool (PHPoC Debugger)

H/W Specification

Power	Input Power	DC Jack, 5V (±0.5V)
	Current Consumption	typical - approximately 328mA
Dimension		94mm x 57mm x 24mm
Weight		approximately 68g
Interface	Digital Output	6-pole terminal block, 2 digital outputs, NO or NC type
	Network	10/100Mbps Ethernet
	USB	USB Device Port - for PC connection
	LED	8 LEDs(System: 6, User-defined: 2)
Temperature (storage/operating)		-40℃ ~ 85℃
Environment		RoHS Compliant

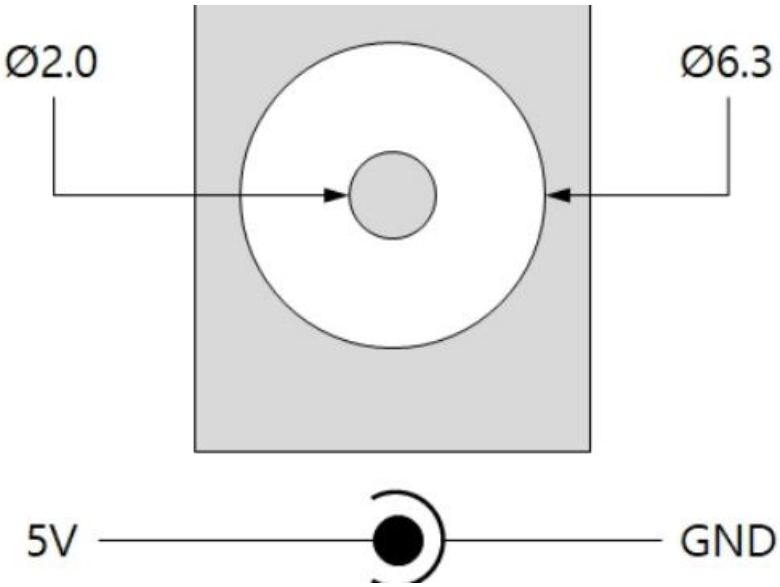
Layout



Supplying Power

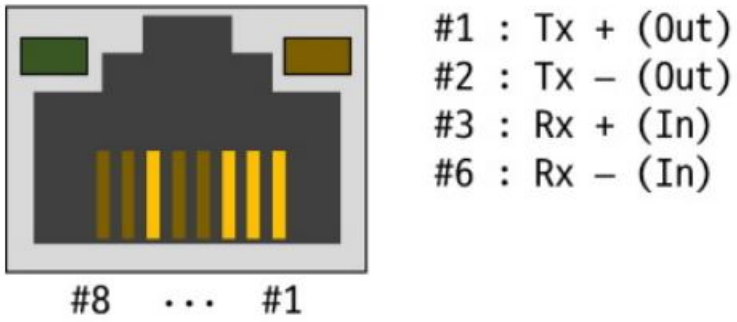
DC 5V Input

This port is the input port for supplying power. Specification is as follows:



Ethernet

Ethernet port supports 10/100Mbps Ethernet. This port is an RJ45 connector and it is mapped to NET0 for programming



Digital Output

2 digital output ports are an 6-pole(5mm pitch) terminal block. Each port is mapped a specific pin of UIO0 for programming.

Port	Description	Terminals	UIO pin
DO0	digital output port #0	COM, NO, NC	UIO0.0
DO1	digital output port #1	COM, NO, NC	UIO0.1

Normal Open

It means that the output port default is OFF. This method can be used by connecting user equipment to COM terminal and NO terminal of each output port. The maximum allowable current is 5A at DC 30V.

Normal Close

It means that the output port default status is ON. This method can be used by connecting user equipment to COM terminal and NC terminal of each output port. The maximum allowable current is 1A at DC 30V.

LED

This product has 8 LEDs. The user-defined LEDs are turned on when you output LOW to the UIO pin connected.

Lable	Color	Description	UIO pin
PWR	Red	System LED - power supplying status	-
STS	Yellow	System LED - system status	-
A	Green	User-defined LED	UIO0.30
B	Green	User-defined LED	UIO0.31
Do0	Green	System LED - status of input port #0	UIO0.0
Do1	Green	System LED - status of input port #1	UIO0.1
RJ45_G	Green	System LED - network link status	-
RJ45_Y	Yellow	System LED - system status	-

Function Button
The function button, which is inside the hole of the side panel, is used to operate this product as a button setup mode.

USB Device Port for connection with PC
The USB device port is to connect with PC. You can access to P5H-155 via development tool by\ connecting USB cable to this port.

Software (IDE)

PHPoC Debugger

PHPoC Debugger is a software used for developing and setting PHPoC products. You need to install this program on your PC for using PHPoC.

- PHPoC Debugger Download Page
- PHPoC Debugger Manual

Functions and Features of PHPoC Debugger

- Upload files from local PC to PHPoC
- Download files in PHPoC to local PC
- Edit files stored in PHPoC
- Debug PHPoC scripts
- Monitor resources of PHPoC
- Configure parameters of PHPoC
- Upgrade Firmware of PHPoC
- Support MS Windows O/S

Connecting Product

USB Connection

- Connect the USB device port of P5H-155 to your PC via a USB cable.
- Run PHPoC Debugger
- Select connected COM PORT and press connect () button.

- If USB is successfully connected, connect button will be inactivated and disconnect button () will be activated

Remote Connection
P5H-155 provides the remote connection. Please refer to the PHPoC Debugger manual page for details.

Reset

Settings Reset
Settings Reset makes all settings of your PHPoC products to factory default.

Settings Reset Procedure

Step	Action	Product State	STS LED
1	Press function button shortly (less than 1 second)	Button setup mode	On
2	Keep pressing the function button over 5 seconds	Preparing initialization	Blink very rapidly
3	Check if the STS LED is turned OFF	Initialization ready	Off
4	Release the function button right after the STS is OFF.(※ If you don't release the button within 2 seconds, the state go back to the step 3)	Progressing initialization	On
5	Rebooting automatically	Initial state	Off

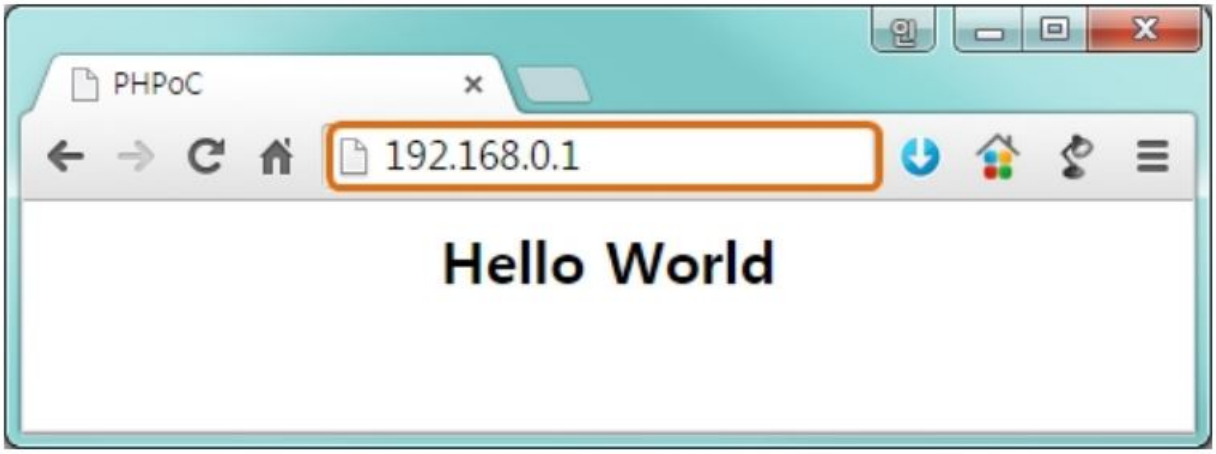
Factory Reset

Factory Reset makes all settings of your PHPoC products to factory default including a password. Futhermore, all files stored in flash memory are deleted as well as certificate. Because of this, you have to backup your files before doing Factory Reset. To progresss the Factory Reset, the PHPoC Debugger is required.

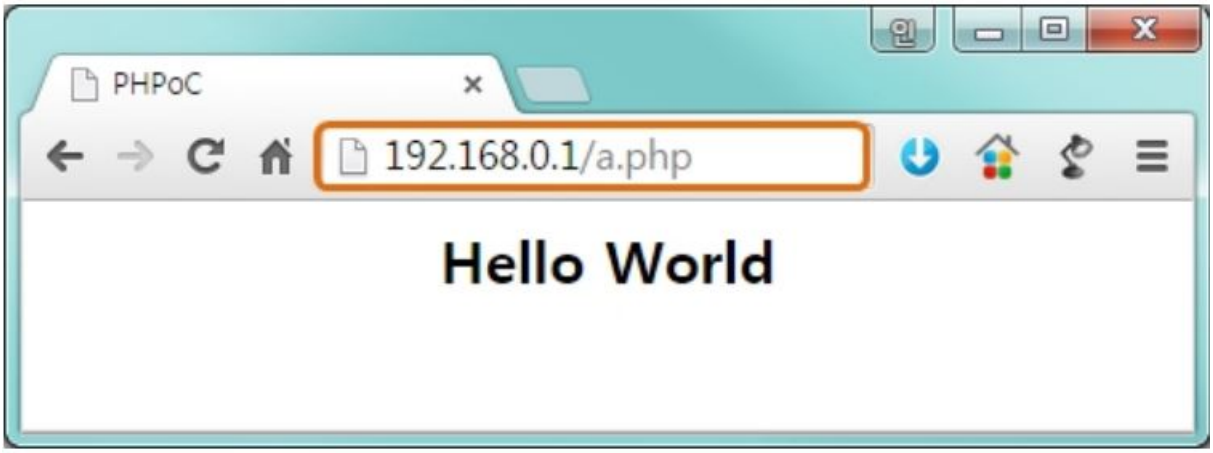
Factory Reset Procedure

Web Interface

PHPoC itself has a webserver to provide a web interface. When receiving a HTTP request, it executes the php script in the requested file (if there) and respond to the client. Webserver is independent of



PHPoC main script. TCP 80 is used for web server and you can use the interface via Internet Explorer, Chrome or any other web browsers.



How to use web interface
To use the web interface, “index.php” file should be in the file system of your PHPoC. Connect to this page by entering device IP address after connecting it to network

If the name of file is not “index.php”, just specify the name of file after the IP address with slash mark.

Practical Use of Web Interface
Since the web server executes the php script in the requested file, user can put php code in the in the requested file to interact with peripherals. It is worth noting that there is other way to interact with the peripherals in real-time from web interface. This can be done by using websocket.

Setting Passwords
If you set a password for the product, you must enter the password when connecting the product via USB or network. Please refer to the PHPoC Debugger manual page for details.

Escaping Infinite Reset

PHPoC basically runs scripts when it boots up. Therefore, it is possible that a PHPoC cannot be escaped from infinite reboot when script contains system command such as “reboot”. To solve this problem, it is required to stop the running script.

Refer to the following.

- Entering ISP mode
  - Make your PHPoC product to enter ISP mode by supplying power while pressing FUNC button. In the ISP mode, you can access to PHPoC by PHPoC Debugger without running a script.
- Connect to PHPoC
  - Connect a PC to PHPoC via a USB cable and connect to the port via PHPoC Debugger. A message window related with ISP mode will be popped up.
- Reboot PHPoC
  - Reboot PHPoC by using “Reboot a product” menu in PHPoC Debugger. After rebooting, PHPoC stops running script even it is not in the ISP mode.
- Correct source code
  - Correct the source code to prevent infinite reboot state.

Device Information

Device	Quantity	Path	Note
NET	1	/mmap/net0	-
TCP	5	/mmap/tcp0~4	-
UDP	5	/mmap/udp0~4	-
UIO	1	/mmap/uio0	DO 2(UIO0.0 ~ 1), LED 2(UIO0.30 ~ 31)
ST	8	/mmap/st0~7	-
UM	4	/mmap/um0~3	-
NM	1	/mmap/nm0	-
RTC	1	/mmap/rtc0	-

Documents / Resources

	PHPoC P5H-155 Programmable IoT Gateway Device [pdf] User Manual P5H-155, Programmable IoT Gateway Device, P5H-155 Programmable IoT Gateway Device, IoT Gateway Device, Gateway Device, Gateway, Device