



PHPoC Blue

P4S-342 User Manual

Version 1.1

Sollae Systems Co., LTD.

PHPoC forum: <http://www.phpoc.com>

Homepage: <http://www.eztcp.com>



This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product.

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1 Overview

1.1 Overview

P4S-342 is an industrial programmable I/O board. You can build various network communication systems connecting P4S-342 to many devices such as sensors and motors.

We provide a self-development programming language, which is called PHPoC, for programming P4S-342. This language is easy to use and compatible with PHP which is widely used script language.

☞ ***PHPoC is basically compatible with PHP but those languages are not the same because of restrictions about embedded system. Refer to the "PHPoC Language Reference Manual" and "PHPoC vs PHP" for detailed information.***

1.2 Features

- Provides Self-Development PHPoC Interpreter
- Provides simple development environment via USB
- Provides IEEE802.11b/g Wireless LAN
- Provides 24 digital i/o and 6 analog input ports
- Provides 2 UART ports
- Provides 4 hardware timer
- Provides I2C and SPI interfaces
- Provides development tool for Windows

1.3 Specification

Power	Input #1	DC 5V ($\pm 0.5V$)
	Input #2	DC 5V ($\pm 0.5V$) - USB Device Port
	Current Consumption	about 0.85mA - typical / 0.5mA - power down mode (without USB WLAN adapter)
Dimension		66.2mm x 63.8mm x 13mm
Weight		about 27.6g (without USB WLAN adapter)
Interfaces	UART	2 X UART Port(UART0 ~ 1) Baud rate: 1,200 bps ~ 460,800 bps
	Network	IEEE802.11b/g Wireless LAN (require Ralink RT3070/5370 chipset WLAN adapter)
	USB	USB Host - for WLAN adapter
		USB Device - for PC
	Digital I/O	UIO0: pin #0 ~ #21, #30(LED), #31(LED)
	Analog Input	ADC_CH0 ~ 5, AREF, 12 bits resolution
	HT	HT0 ~ 3, toggle/pulse/pwm output and capture mode
	SPI	NSS, SCK, MISO, MOSI
I2C	SCL, SDA	
Internal Battery		3V(rechargeable)
Firmware		PHPoC Interpreter
Wireless LAN Security		WPA-PSK / WPA2-PSK, WPA-Enterprise(TLS/TTLS/PEAP)
Temperature	Storage /Operating	-20°C ~ 60°C
Environment		RoHS Compliant
Software		PHPoC Debugger

Table 1-1 specification

1.4 Dimension

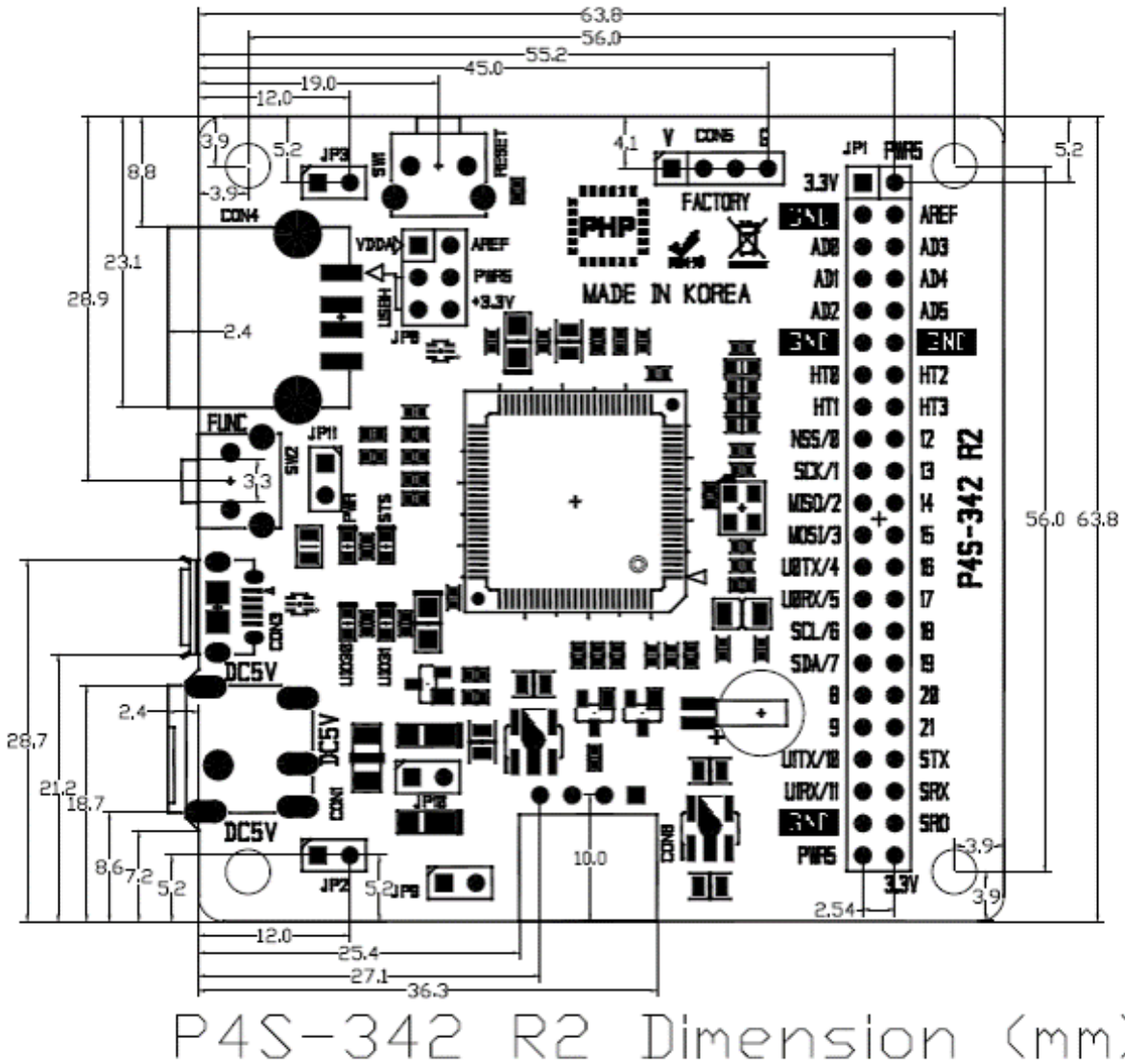


Figure 1-1 dimension

☞ *Dimensions may vary according to a method of measurement.*

1.5 Layout

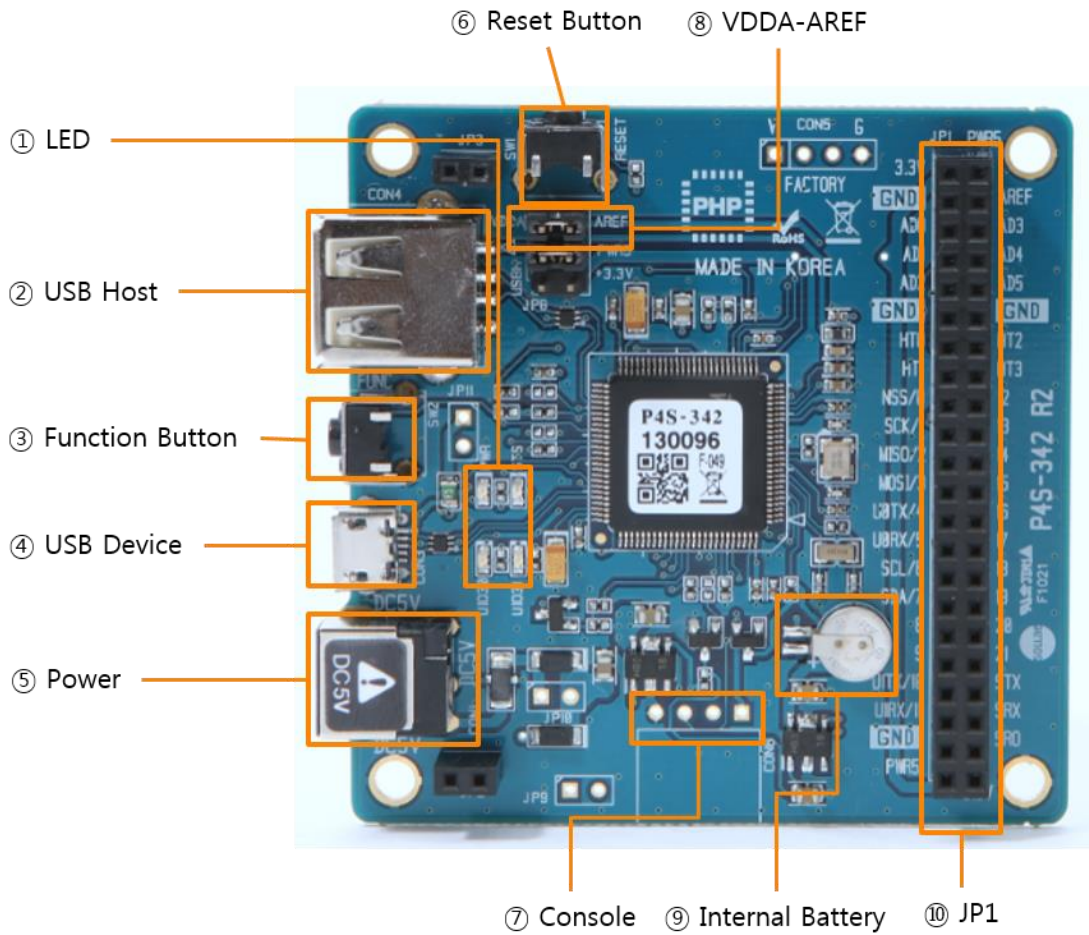


Figure 1-2 panel layout

- ① LED: PWR, STS, UIO30, UIO31
- ② USB host port: USB WLAN adapter connection
- ③ Function button (Func)
- ④ USB device port (Setup): PC connection, DC 5V power supply
- ⑤ Power: DC 5V
- ⑥ Reset button (RESET)
- ⑦ Console port
- ⑧ VDDA-AREF
- ⑨ Internal battery
- ⑩ JP1

1.5.1 LED

LED	Action
PWR	supplying power > ON
STS	running PHP > repeat On and Off in every second
	not running PHP > briefly blinks 1 time at a time
UIO30	on board LED: connected with 30 th pin of UIO0
UIO31	on board LED: connected with 31 th pin of UIO0

Table 1-2 LED

1.5.2 USB Host Port for Connection with WLAN adapter

P4S-342 provides a USB host port for an USB WLAN adapter. You can connect P4S-342 to Wireless LAN by connecting an WLAN adapter to this port. Note that you cannot use Ethernet (Wired LAN) while using this port.

 **Caution: Only adapters using Ralink RT3070/5370 chipsets are available.**

1.5.3 Function Button (Func)

The function button is used for changing mode to button setup mode.

1.5.4 USB Device Port for connection with PC

The USB device port is to connect with PC. You can access to P4S-342 via development tool by connecting USB cable to this port.

You can supply DC 5V power through this port. However, P4S-342 may not work properly in case of supplying power via this port only due to insufficient current.

1.5.5 Supplying Power

- DC 5V Input

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

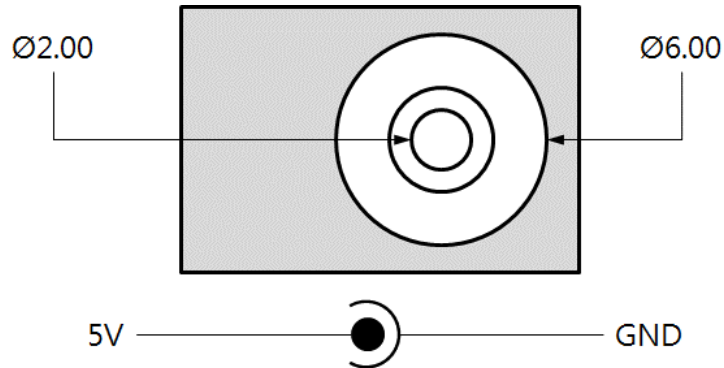


Figure 1-3 CON1 port specification

- USB Device port (Micro USB)

This port can be a sub input port for supplying power.

1.5.6 Reset Button (RESET)

This button is used for hardware reset.

1.5.7 Console Port

This port is console port for management.

Division	Value
Signal Level	3.3V
Configuration	115,200bps / 8 Data bit / 1 Stop bit / No parity
Pin Assignment	#1 - 3.3V, #2 - RX, #3 - TX, #4 - GND

Table 1-3 specification of console port

1.5.8 JP1

Label	Description	Label	Description
3.3V	3.3V Output	PWR5	Output Supplied Power (5V±0.5V)
GND	Ground	AREF	ADC reference input port
AD0	ADC channel 0	AD3	ADC channel 3
AD1	ADC channel 1	AD4	ADC channel 4
AD2	ADC channel 2	AD5	ADC channel 5
GND	Ground	GND	Ground
HT0	Hardware Timer 0	HT2	Hardware Timer 2
HT1	Hardware Timer 1	HT3	Hardware Timer 3
NSS/0	SPI - NSS / UIO0 #0	12	UART #1 RTS / UIO0 #12
SCK/1	SPI - SCK / UIO0 #1	13	UART #1 CTS / UIO0 #13
MISO/2	SPI - MISO / UIO0 #2	14	UIO0 #14
MOSI/3	SPI - MOSI / UIO0 #3	15	UIO0 #15
U0TX/4	UART #0 TX / UIO0 #4	16	UIO0 #16
U0RX/5	UART #0 RX / UIO0 #5	17	UIO0 #17
SCL/6	I2C - SCL / UIO0 #6	18	UIO0 #18
SDA/7	I2C - SDA / UIO0 #7	19	UIO0 #19
8	UART #0 RTS / UIO0 #8	20	UIO0 #20
9	UART #0 CTS / UIO0 #9	21	UIO0 #21
U1TX/10	UART #1 TX/ UIO0 #10	STX	Reserved
U1RX/11	UART #1 RX/ UIO0 #11	SRX	Reserved
GND	Ground	SR0	Reserved
PWR5	Output Supplied Power (5V±0.5V)	3.3V	3.3V Output

Table 1-4 JP1 pin assignment

1.5.9 VDDA-AREF

If you connect this port, 3.3V is supplied to the analog input reference port (AREF).

1.5.10 Internal Battery

Internal battery is for saving log messages and operating RTC. Specification of this battery is as follows:

Parameter	Value
Capacity	5.8mAh
Nominal Voltage	DC 3V
Charge Voltage	DC 2.8V to 3.1V

Table 1-5 internal battery

1.6 Communication Interface (JP1)

1.6.1 Analog Input: ADC

P4S-342 provides 6 ADC input channels. To use this input, it is required to connect reference voltage to an AREF pin. If you connect a VDDA-AREF jumper, 3.3V is supplied to the AREF pin. Specification of an ADC port is as follows:

Parameter	Value
Resolution	12 bits (0 ~ 4095)
Input Type	DC Voltage (Max. 3.3V)
Number of Channel	6 channels
Interfaced Pin Label	AREF, AD0 ~ 5

Table 1-6 specification of ADC

1.6.2 Hardware Timer: HT

P4S-342 provides 4 hardware timers called HT. Specification of HT is as follows:

Parameter	Value
Mode	Output mode(toggle, pulse, PWM), Capture mode
Unit	ms(millisecond) or us(microsecond)
Number of Channel	4 channels
Interfaced Pin Label	HT0 ~ 3

Table 1-7 specification of HT

1.6.3 Digital Inputs/Outputs: UIO

P4S-342 provides 24 digital I/O ports including 22 universal I/O ports (numbered 0 to 21) and 2 LED ports (numbered 30 and 31). Two LEDs on board are assigned to number 30 and 31. The other pins can be available to be set digital input or output. Note that pin numbers which are shared with serial interfaces (numbered 0 to 13) will not be available to use as digital I/O while they are being used by the serial communication (UART, SPI and I2C).

- Electrical Characteristics of Digital I/O

Parameter	Description	Min.[V]	Max.[V]	Current
V _{IH}	HIGH level input	2.31	-	-
V _{IL}	LOW level input	0	0.99	-
V _{OH}	HIGH level output	2.4	-	+8mA
V _{OL}	LOW level output	0	0.4	

Table 1-8 electrical characteristics

- Pin Assignment of Digital I/O

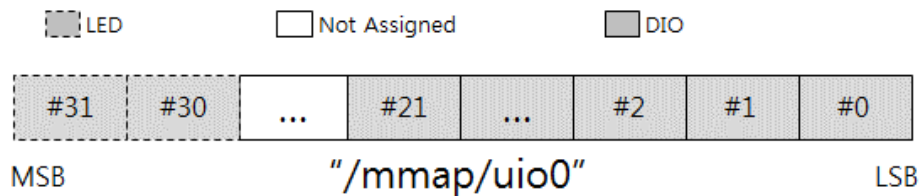


Figure 1-4 pin assignment of digital I/O

1.6.4 Serial: UART

P4S-342 provides 2 UART ports. Specification of UART is as follows:

Division		Value
Number of Port		2
Interfaced Pin Label	UART0	Required(U0TX/4, U0RX/5, GND), Optional(U0RTS/8, U0CTS/9)
	UART1	Required(U1TX/10, U1RX/11, GND), Optional(U1RTS/12, U1CTS/13)
Signal Level		3.3V
Baud Rate		1,200 ~ 460,800 [bps]
Parity		NONE / EVEN / ODD / MARK / SPACE
Data bit		8 / 7(Parity is required to use 7 data bit mode)
Stop bit		1 / 2
Flow Control		NONE, RTS/CTS

Table 1-9 specification of UART

1.6.5 Serial: SPI

P4S-342 provides a SPI interface. Specification of SPI is as follows:

Parameter	Value
Number of Port	1
Signal Level	3.3V
Interfaced Pin Label	NSS/0, SCLK/1, MOSI/2, MISO/3
SPI mode	mode 0 ~ 3
Bit Order	LSB first or MSB first
Transmission Unit	8bit or 16bit
Basic Clock Speed	42MHz
Frequency	2 / 4 / 8 / 16 / 32 / 64 / 128 / 256

Table 1-10 specification of SPI

1.6.6 Serial: I2C

P4S-342 provides an I2C interface. Specification of I2C is as follows:

Parameter	Value
Number of Port	1
Signal level	3.3V
Interfaced Pin Label	SCL, SDA
Data Rate	Standard mode(100Kbps) or Fast mode(400Kbps)
Address Type	7bits

Table 1-11 specification of I2C

 **Refer to the "PHPoC Device Programming Guide for p40" for detailed information about interfaces.**

1.7 Development Environment

1.7.1 Overview

P4S-342 provides development environment over USB. PHPoC Debugger, which is development software, is required to program P4S-342 or to debug PHPoC source codes.

1.8 PHPoC Debugger

1.8.1 Program Overview

PHPoC Debugger is a software running on Windows. This program does not require installation. You can upload files to P4S-342 with this program through a USB port. Features of PHPoC Debugger are as follows:

- Upload files from local PC to P4S-342
- Save files which are in P4S-342 to local PC
- Edit files stored in P4S-342
- Debug PHPoC scripts
- Monitor P4S-342 resources
- Set P4S-342
- Upgrade Firmware of P4S-342

1.8.2 Program Structure

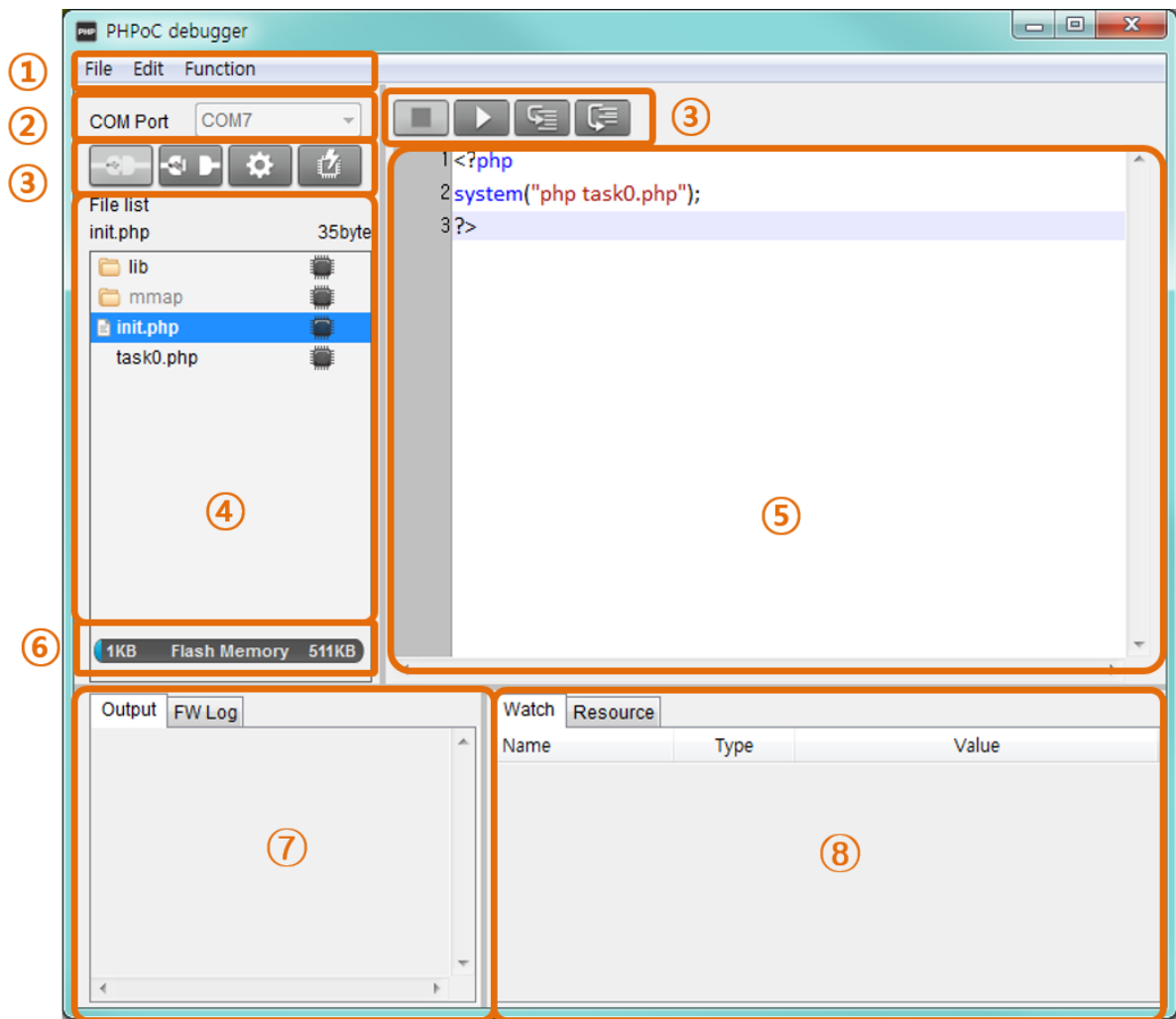


Figure 1-5 program structure

① Menu bar

Menu	Sub menu	Description
File	Open a poc file	Open a poc format file
	Save selected file(s)	Save selected files in file list to local PC
	Save a poc file	Save all files in file list to local PC (.poc)
Edit	Undo	Undo the latest job
	Redo	Redo the latest job undone
	Cut	Cut selected text and copy it to clip board
	Copy	Copy selected text to clip board
	Paste	Paste text of clip board
	Select all	Select all texts
	Find	Find the specified text
	Find Next	Find the next text by down direction
	Find Previous	Find the next text by up direction
	Change	Replace the specified text with given text
	Preferences	Program preference
Function	Product / Firmware information	Information of current firmware and product
	Network information	Current network information
	View PHP error log	View firmware log messages in error
	View firmware error log	View firmware messages in error
	Upgrade firmware	Upgrade firmware
	Reboot a product	Reboot a product
	View firmware log	View firmware log messages
	Firmware Debug mode	Enable/disable Firmware debugging mode
	PHP Debug mode	Enable/disable PHP debugging mode
	Font	Change font
	Language	Change language
PHPoC Debugger information	Information about PHPoC Debugger	

Table 1-12 menu bar

● Preferences

Menu	Sub menu	Description
View	View margin	Show/hide margin
	View line number	Show/hide line number on margin
	View current line	Enable/disable current line emphasis
	Auto scroll	Enable/disable auto scroll
	Line ratio	Set line space: 100, 120, 150, 200, 300
	Tab size	Set tab size: 1, 2, 4, 8, 16
Action of file add	Internal editor	PHPoC Debugger internal editor
	External editor	External editor
	Ask	Show select option every time
Backup path		Path of backup files
Initialization	Enter initialization mode	Set product to initialization mode

Table 1-13 preferences

② COM PORT

Part for choosing a virtual USB COM port

③ Buttons









Button	Description
	Connect to PHPoC product
	Disconnect to PHPoC product
	Configure environmental values of PHPoC product
	Upload files on [File list] to PHPoC product
	Stop running PHPoC codes
	Run/pause PHPoC codes
	Run line by line
	Run procedure by procedure

Table 1-14 buttons

④ File list

List of files saved PHPoC product or to be uploaded.





Icon	Description
	Synchronized files
	Files on PHPoC product before synchronization
	Files on local PC before synchronization
	Synchronized files on local PC for external editors

Table 1-15 file list

The following menus will be popped up when right clicking on file list area.

Menu	Description
New	Create a new php file
Change the filename	Modify file name
Add	Add files from local PC
Delete	Delete file on the list

Table 1-16 pop up menu on file list

⑤ Editor

Showing and editing contents of selected file on the file list.

The following menus will be popped up when right clicking on editor area.

Menu	Description	Shortcut
Toggle Breakpoint	Set / Unset break point on current line	F9
Remove All Breakpoints	Unset all break points on current file	Shift+F9
Step Into	Run line by line	F11
Step Over	Run procedure by procedure	F10
Cut	Cut selected codes and copy to clip board	Ctrl+X
Copy	Copy selected codes to clip board	Ctrl+C
Paste	Paste codes on clip board	Ctrl+V
Select all	Select all codes	Ctrl+A

Table 1-17 pop up menu on editor

⑥ Flash memory size

This shows currently available or in-use space on flash memory of PHPoC product.

⑦ Output / FW Log

This window is for displaying standard output and F/W log messages.

The following menus will be popped up when right clicking on the windows.

Menu	Description
Delete all logs	Clear screen buffer
Copy a log	Copy selected log to clip board
Auto scroll	Set / Unset auto scroll

Table 1-18 pop up menu on output / FW Log window

⑧ Watch / Resource

This window is for checking run time variable information and system resources.

The following menus will be popped up when right clicking on the watch window.

Menu	Description
Add	Add a variable
Modify	Modify a name of selected variable
Delete	Delete selected variables
Delete all	Delete all variables
Detail	Create a new window for detailed information
Refresh	Refresh variables

Table 1-19 pop up menu on watch / Resource window

2 Test Run

This chapter instructs how to program and execute provided example codes.

2.1 Development Environment Construction

2.1.1 Local PC

A MS windows PC is required to upload php files to the P4S-342 while creating and modifying php files are available on other operating systems.

2.1.2 Connecting P4S-342

Connect P4S-342 to a PC with a USB cable.



Figure 2-1 connecting P4S-342

2.1.3 Running PHPoC Debugger

Run PHPoC Debugger on the PC.

This document defines "Upload" to "Sending files from a PC to P4S-342."

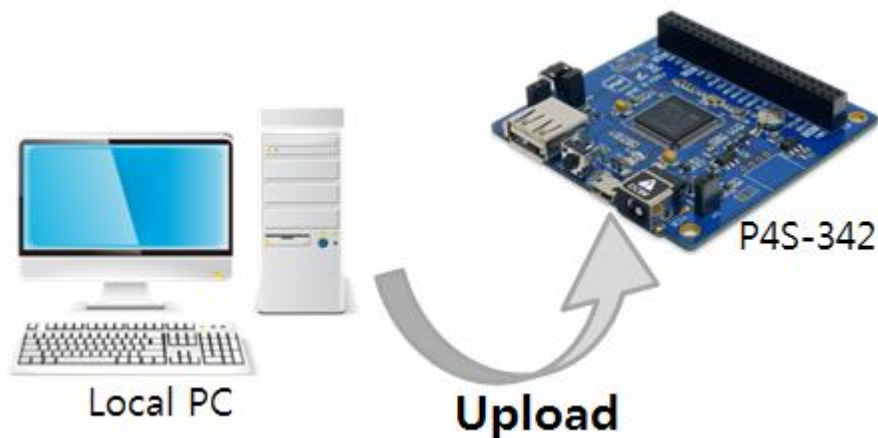


Figure 2-2 definition of upload

2.2 Connecting Product

2.2.1 Connecting Product

Connect P4S-342 to your PC via a USB cable.

☞ ***Device driver will be automatically installed when you connect P4S-342 to your PC. When you fail to get automatic installation, download and install the driver on ST Micro web site.***

☞ ***STM32 USB Virtual Com Port Driver Download page:***

<http://www.st.com/web/catalog/tools/FM147/CL1794/SC961/SS1533/PF257938>

2.2.2 Ready to Communicate

- ① Run PHPoC Debugger
- ② Select connected COM PORT and press connect () button.
- ③ If USB is successfully connected, connect button will be inactivated and disconnect button () will be activated.

2.3 Practice

2.3.1 PHPoC Operation

PHPoC searches the "init.php" file right after it boots up. If there is no "init.php" file, none of PHPoC code will be implemented. Thus, you must create or upload the "init.php" file into PHPoC file system.

You can write a script on the "init.php" as well as running other php files using php commands of system function. The "init.php" is implemented just once but loaded files by the command can be repeatedly run.

☞ ***Refer to the "PHPoC System Function" document for detailed information about system function.***

- Running script on "init.php"

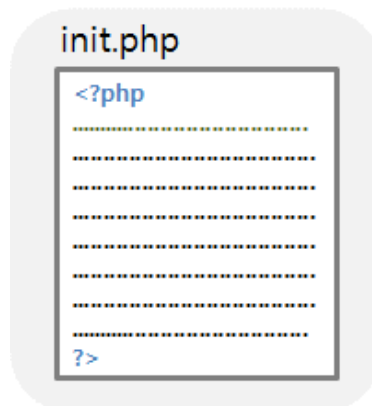


Figure 2-3 running script on "init.php"

- Running another php file in "init.php"

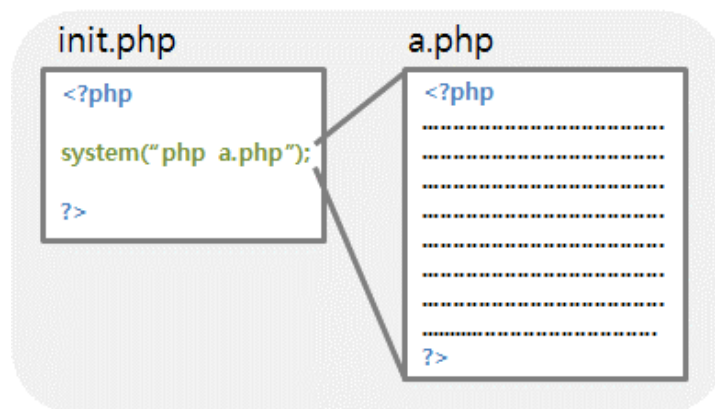


Figure 2-4 running another php file in "init.php"

- Script run flow chart

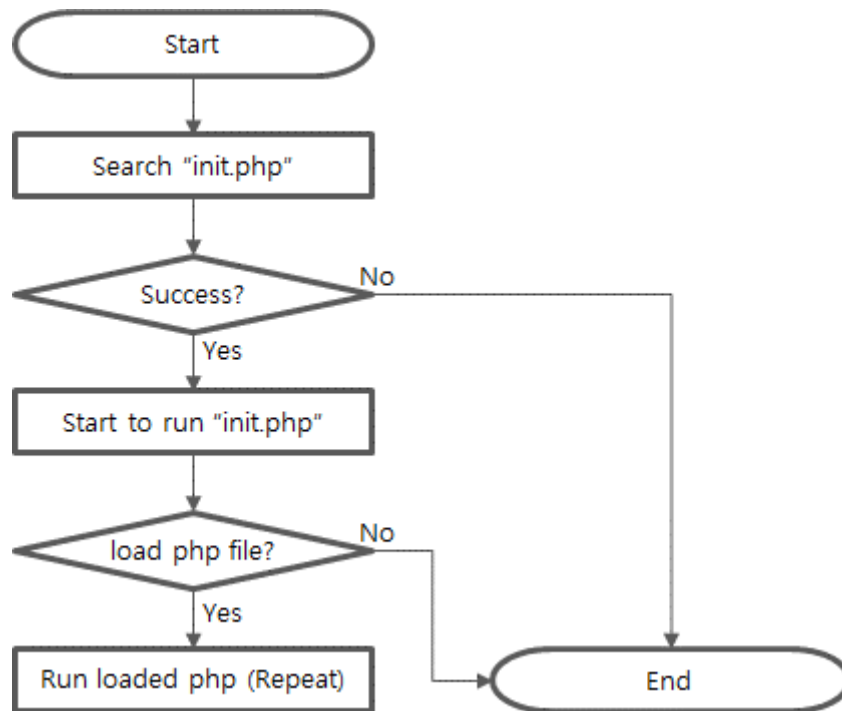


Figure 2-5 flow chart of script run

☞ ***"init.php" is a start of all scripts. It means that every php file is directly or indirectly required to be loaded on "init.php" to run.***

2.3.2 Default Files

P4S-342 is released with the following files uploaded.

File Name	Description
/lib/sd_340.php	basic library of P4S-340/342
/lib/sn_tcp_ws.php	Web socket library

Table 2-1 default files

2.3.3 Create init.php

- Click file list with the right button of your mouse and select [New] menu.

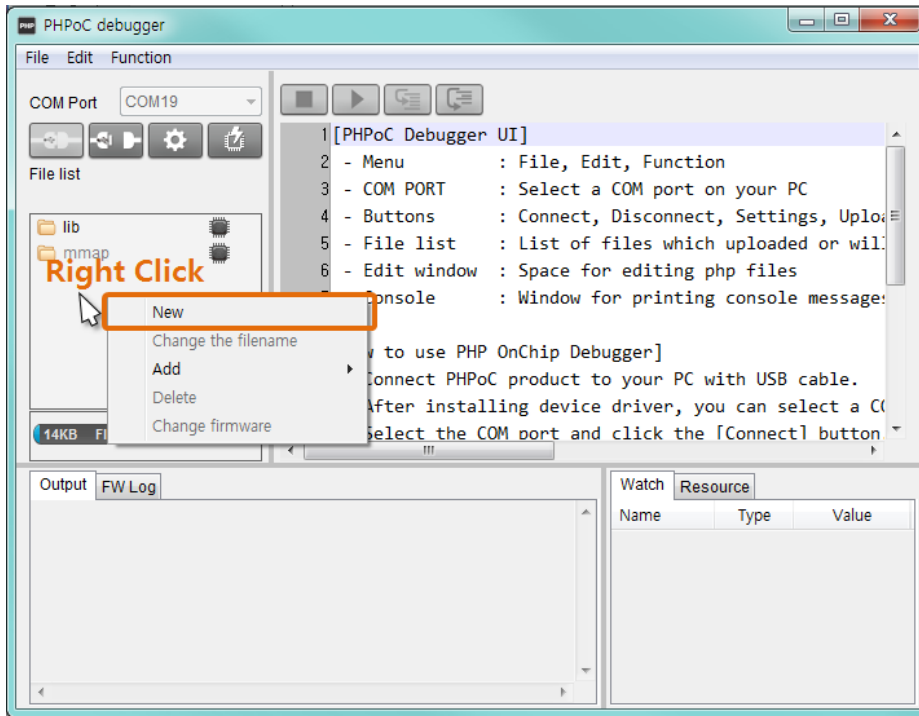


Figure 2-6 create init.php (1)

- Input "init" into the file name box.

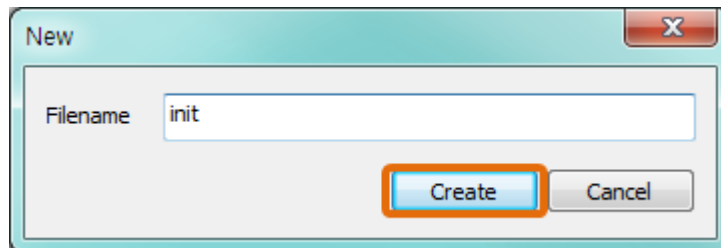


Figure 2-7 create init.php (2)

- Select init.php file in the file list.

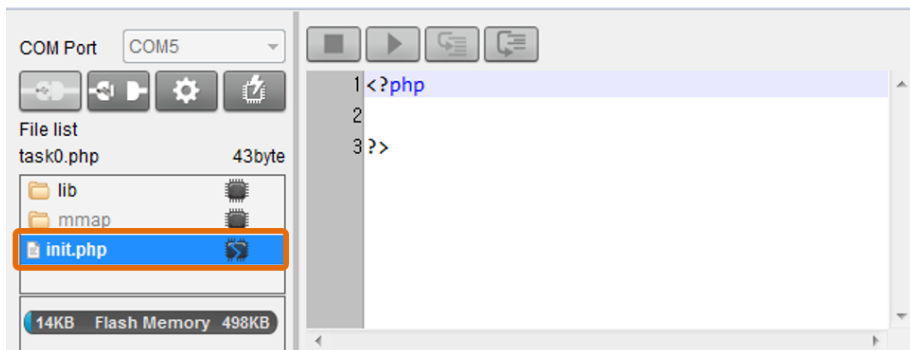





Figure 2-8 select init.php

- Input the following command lines into the editor.

```
1 <?php
2 echo "Hello PHPoC\r\n";
3 ?>
```

Figure 2-9 edit init.php


- Click upload button. ()
- After PHPoC finishes uploading files, icon will be changed. ( → )

2.3.4 Execute Script

PHPoC automatically runs a script when it boots up or uploads file system. You can find the result in the Output window of PHPoC Debugger.



Figure 2-10 result

- ☞ *If [PHP debug mode] option of PHPoC Debugger is enabled, PHPoC does not execute a script automatically. You can manually run the script by clicking the Run button. ()*

2.4 Saving Files to PC

2.4.1 Saving File to PC

- Select files in file list



Figure 2-11 saving files to PC (1)

- Click [File] > [Save selected file(s)] menu on menu bar

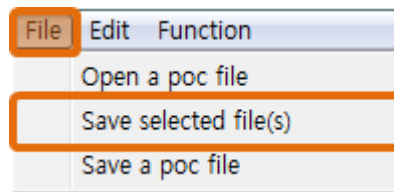


Figure 2-12 saving files to PC (2)

- Choose a path and click [OK] button.

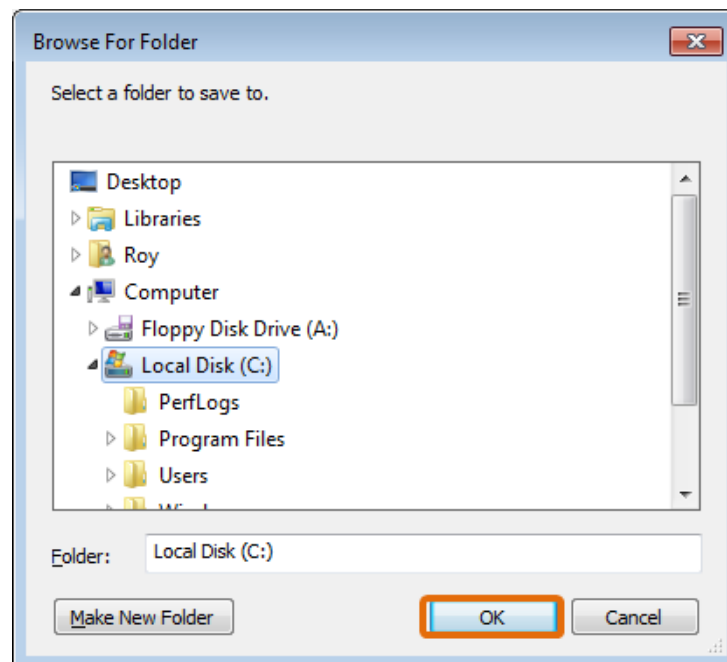


Figure 2-13 saving files to PC (3)

2.4.2 Save as a Integrated (.poc) file

- When you want to save all files on the file list as a single file, use [Save a poc file] menu.

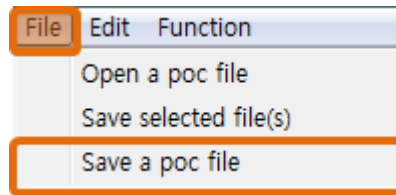


Figure 2-14 save as a poc file (1)

".poc" is filename extension. Input filename and click [Save] button.

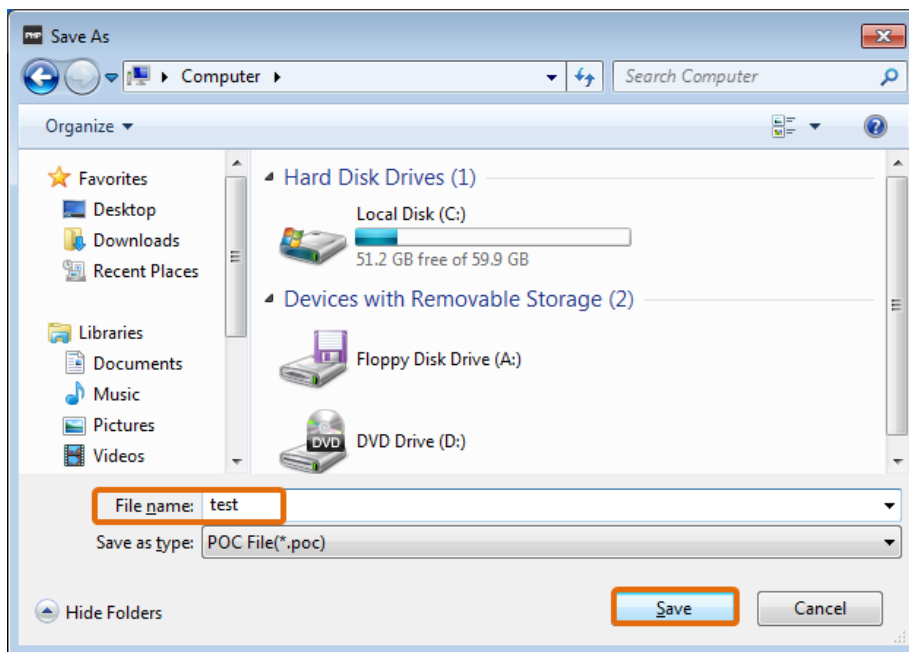


Figure 2-15 save as a poc file (2)

2.5 Upload Files to Product

Php files in local PC can be uploaded to P4S-342.

2.5.1 How to Add Files to File list

- Drag & Drop

Select and drag files on Window explorer to file list box and drop them.

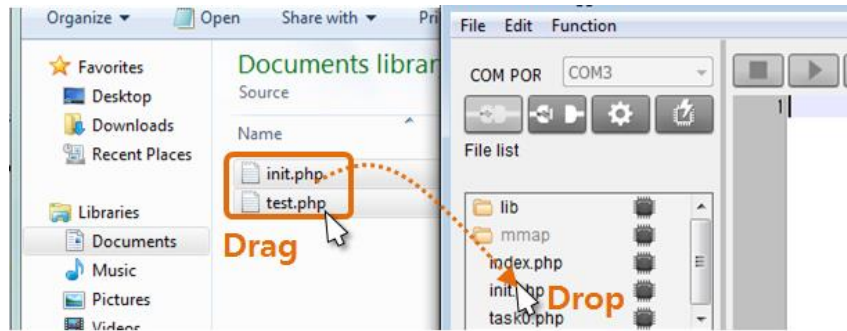


Figure 2-16 add files to file list (1)

- Add menu

If you click [Add] after right-clicking in the file list box, a window for selecting files will be created. Selected files on the windows will be added to the file list.

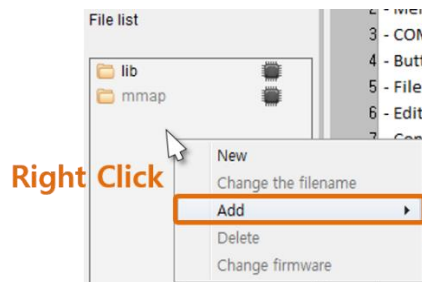




Figure 2-17 add files to file list (2)

Integrated file(.poc) should be added by [File]>[Open a poc file] menu only.

2.5.2 Upload files

Files in the file list will be uploaded to P4S-342 by clicking upload () button. If the uploading is completed, both files on the file list and in P4S-342 are synchronized with changing () icons

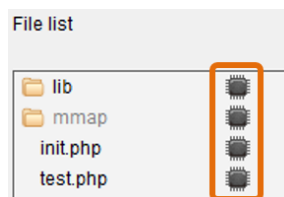


Figure 2-18 upload files

2.6 Using PSP Examples

PHPoC Support Package (PSP) contains libraries and example codes. This package is provided to help you use PHPoC conveniently. Before starting test run, download it in your local PC.

- PSP Download Link: <http://www.phpoc.com/forum/viewtopic.php?f=6&t=44>

2.6.1 Choose an Example

PSP contains many examples using various sensors. Choose an example you are interested in and upload the files to PHPoC. There are three categories.

- basic task examples

These examples require uploading both "init.php" and "task0.php".

- web task examples

These examples require uploading "index.php" and a set of image files if there are any.

- both basic and web task examples

These examples require uploading "init.php", "task0.php" and "index.php" including a set of image files if there are any.

2.6.2 Using Examples

- Find and upload 00.hello example in the p4s/01.php_task folder.
- You can find a result message right after uploading the files.

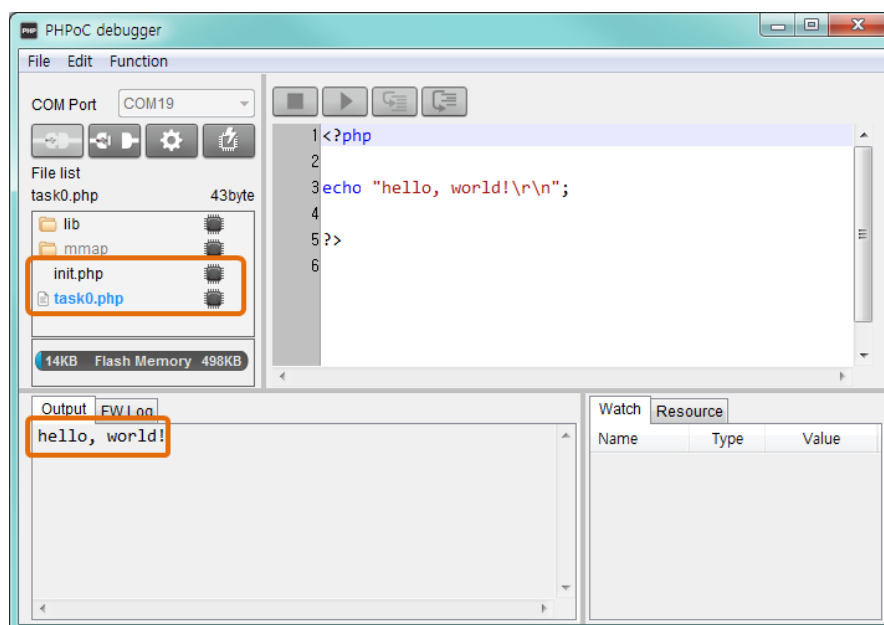




Figure 2-19 using 00.hello in the basic task examples


3 Management

3.1 Configure Parameters

All parameters including an IP address can be configured by PHPoC Debugger.

3.1.1 Configuration Procedure

- ① Connect PHPoC product to PC.
- ② Run PHPoC Debugger and click connect () button.
- ③ After then, click configuration () button..

☞ *Sometimes you can see inactivated configuration button. In this case, click stop () button before configuration.*

- ④ Configure parameters

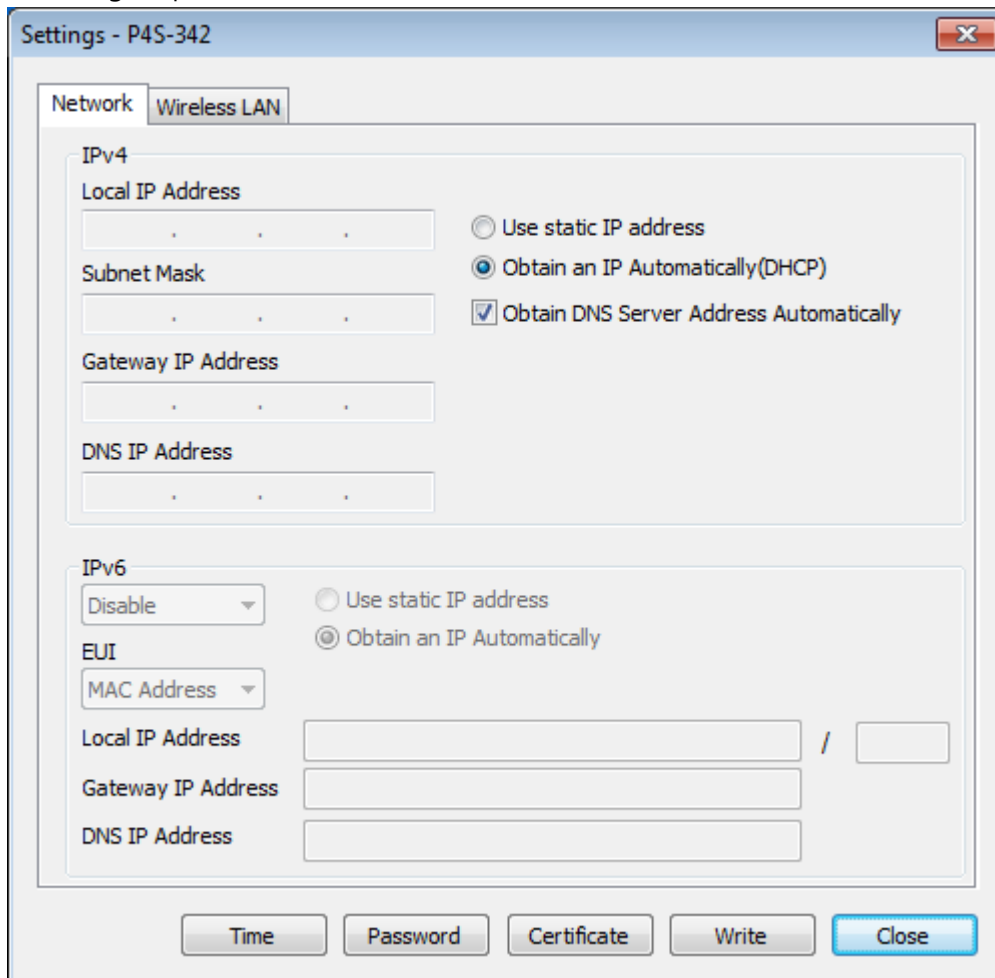


Figure 3-1 configuration window

3.1.2 System Parameters

Tab	Category	Parameter
Network	IPv4	IP address
		Subnet mask
		Gateway IP address
		DNS server IP address
		IP address type - Use static IP address
		IP address type - Obtain an IP automatically (DHCP)
		IP address type - Obtain DNS server address automatically
	IPv6	(scheduled to support in the future)
Wireless LAN	Basic Settings	WLAN - Enable / Disable
		WLAN Topology - Ad-hoc / Infrastructure / Soft AP
		Search AP / Search channel
		Channel
		SSID
		Internal Antenna / External Antenna
		Advanced Settings
	Security Settings	Shared Key
		802.1X: EAP-TLS / EAP-TTLS / PEAP
	Buttons	Time
Password		Password (ID: Admin)
Certificate		Write self-signed certificate
		Write signed certificate from certification authorities
		Read the certificate form a device

Table 3-1 system parameters

Caution: PHPoC does not support restoration when you forget your password. You can restore P4S-342 to factory default condition by using level 2 initialization but all of your settings, files and the password will be deleted.

3.2 Initialization

3.2.1 Level 1

When you implement level 1 initialization, both system parameters and user parameters including stored certificate will be initialized to factory state. However, the password and file system will not be changed.

- Level 1 Initialization 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 STS LED after 5 seconds	Initialization ready	Off
4	After the step 3, release the function button within 2 seconds (After 2 seconds elapsed, state go back to the step 3)	Progressing initialization	On
5	Rebooting automatically	Initial state	Off

Table 3-2 level 1 initialization procedure

☞ ***WLAN easy setup function will be activated in the button setup mode in level 1 initialization. Thus, a STS LED may be blink if a wireless LAN client is linked.***

3.2.2 Level 2

When you implement level 2 initialization, all parameters including user password and file system is initialized to factory state.

☞ ***Level 2 initialization should be used very carefully. Note that you had better to back up your files to a local PC before doing this because they will be deleted.***

- Level 2 Initialization Procedure

Step	Action	Product State	STS LED
1	Set PHPoC to initialization mode (Use [Edit]>[Preferences] menu on PHPoC Debugger)	Enter Initialization mode after reboot	Blink rapidly
2	Keep pressing the function button over 10 seconds	Preparing initialization	Blink very rapidly
3	Check STS LED after 10 seconds	Initialization ready	Off
4	After the step 3, release the function button within 2 seconds (After 2 seconds elapsed, state go back to the step 3)	Progressing initialization	On
5	Initialization is finished	Initial state	Off

Table 3-3 level 2 initialization procedure

3.3 WLAN Easy Setup

P4S-342 enters into button setup mode when you push function button in normal state. In this mode, WLAN easy setup function is activated if an USB WLAN adapter is connected so you can access to P4S-342 by smartphone or laptop by WLAN.

3.3.1 SSID

Once WLAN easy setup function is activated in button setup mode, P4S-342 uses SSID including its own MAC address like an AP. SSID is contained the second half of the P4S-342's MAC address after "phpoc_" which is a prefix. For example, if the MAC address is "0030f9060101", the SSID is "phpoc_060101".

3.3.2 WLAN Connection

Find the SSID of P4S-342 via a smartphone or laptop.



Figure 3-2 WLAN connection

3.3.3 DHCP

While using WLAN easy setup function, a mobile automatically gets a dynamic IP address from your P4S-342. The IP address of P4S-342 is fixed to 192.168.0.1 and mobile obtains an IP address in 192.168.X.X range.

3.3.4 Access to Product

After uploading a setting page to P4S-342, you can access to it by web browser.



Figure 3-3 accessing by web browser

WLAN easy setup function is available by connecting a USB WLAN adapter.

3.4 Web Interface

PHPoC provides a web interface regardless of script execution. TCP 80 is used for web interface and you can use the interface via Internet Explorer, Chrome or any other web browsers.

3.4.1 How to use web interface

To use the web interface, "index.php" file should be in the file system of P4S-342. Connect to this page by entering device IP address after connecting it to network.

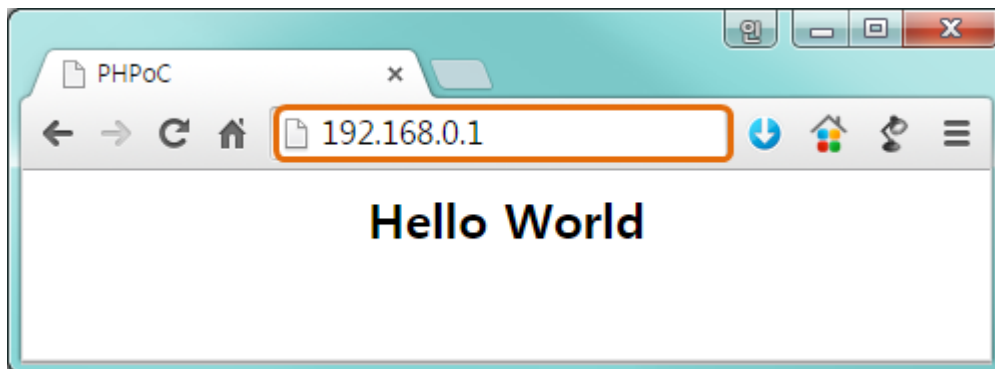


Figure 3-4 web interface (1)

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

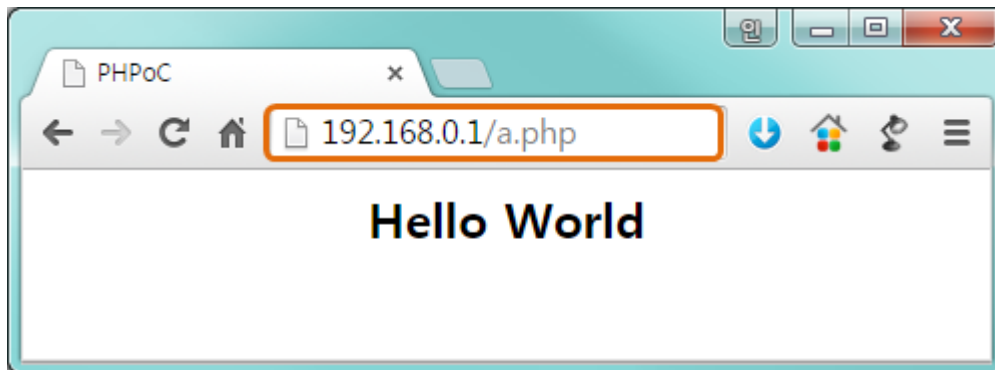


Figure 3-5 web interface (2)

3.4.2 Practical Use of Web Interface


A web interface is very useful because it runs while P4S-342 is operating in button setup mode. If you upload web pages for running any function, you can easily use it by wireless LAN.

3.5 Firmware Upgrade

3.5.1 Download Firmware File

Check and download a firmware file on PHPoC web site to your local PC.

3.5.2 Firmware Upgrade

- ① Connect setup port of P4S-342 to local PC via a USB cable.
- ② Run PHPoC Debugger and click connect () button.
- ③ Click [Function] > [Upgrade Firmware] menu.

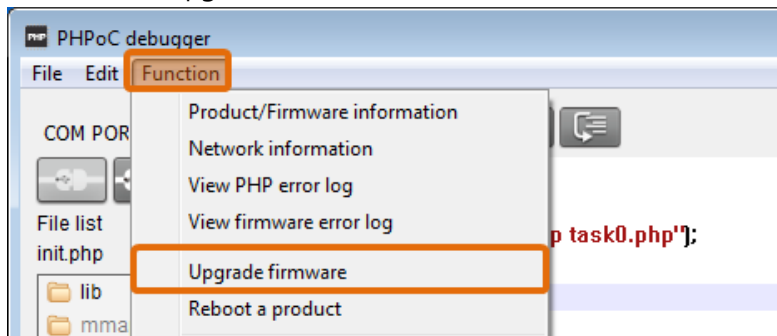


Figure 3-6 firmware upgrade (1)

- ④ Click [Open] button to select the firmware file.

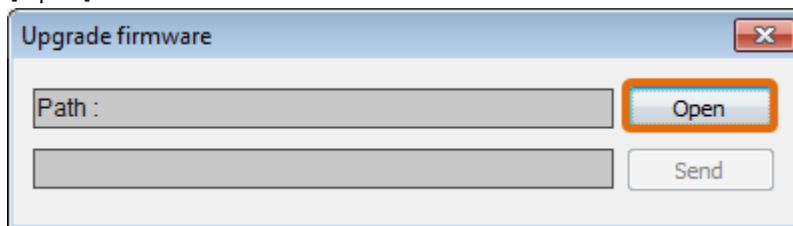


Figure 3-7 firmware upgrade (2)

- ⑤ Click [Send] button.

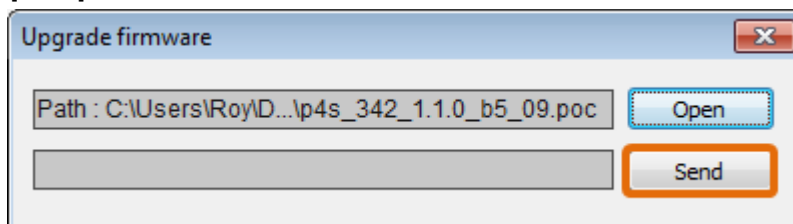


Figure 3-8 firmware upgrade (3)

- ⑥ Firmware Upgrade Completed.

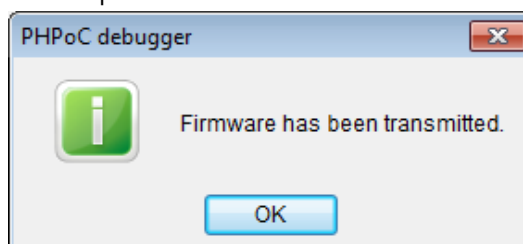


Figure 3-9 firmware upgrade (4)

3.6 Etcetera

3.6.1 Using External Editor

In case that you do not want to use PHPoC Debugger's internal editor but external editor, just set [External editor] option of [action of file add] item on preferences window.

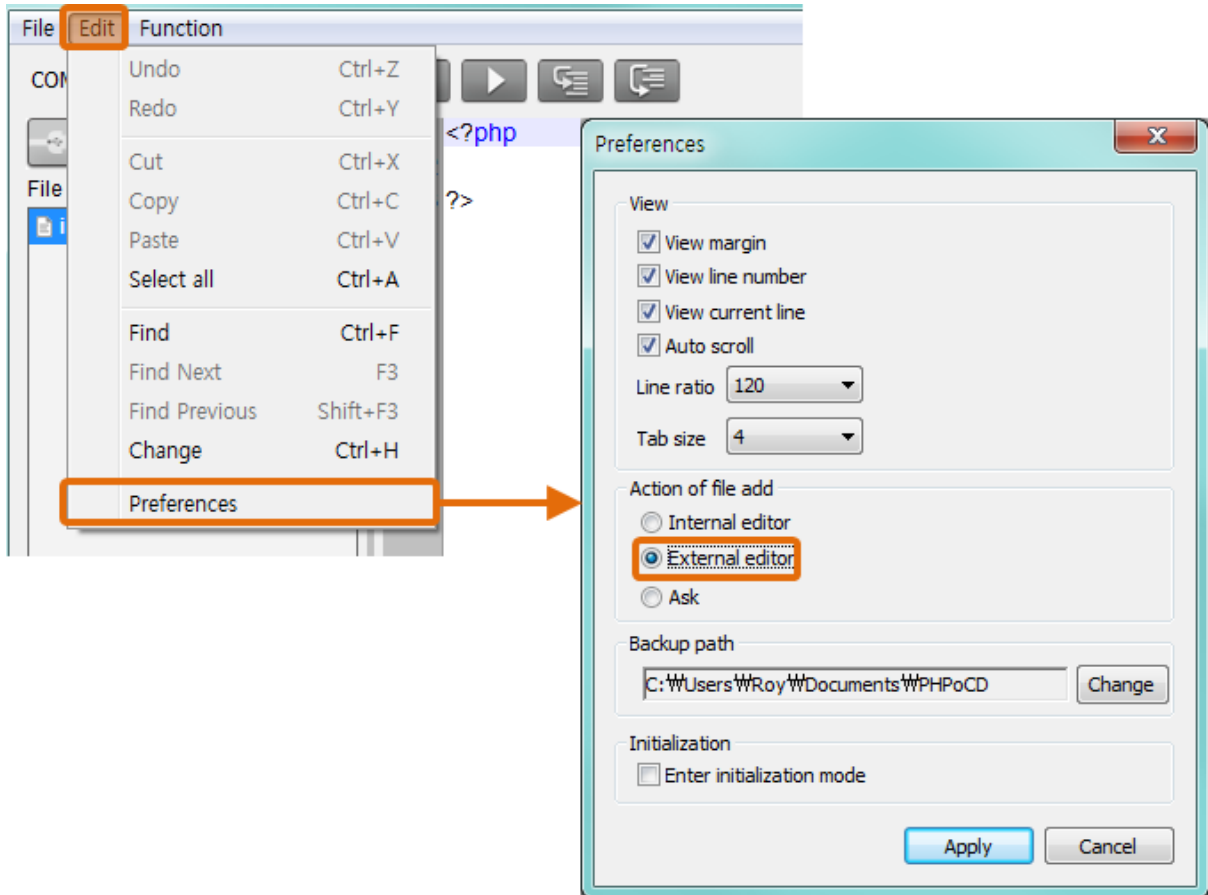


Figure 3-10 using external editor (1)

When you upload php files with this option, the lock icons below will be shown on the synchronized files. Files with this icon cannot be modified by internal editor of PHPoC Debugger but external editors.

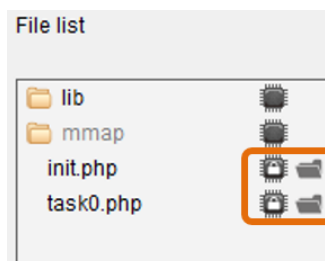


Figure 3-11 using external editor (2)

3.6.2 PHP Debug Mode

PHPoC provides run-time debugging function. Buttons for debugging are enabled when you check the PHP debug mode option in PHPoC Debugger. In this mode, you can set break points or check values of variables at every command line.

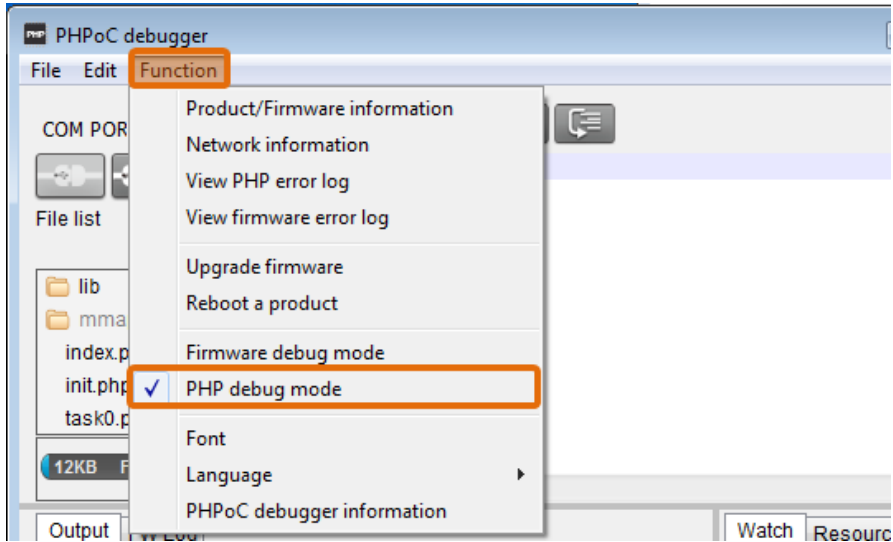


Figure 3-12 enable PHP debug mode (1)

When PHP debug mode is enabled, a white arrow will appear on the left of current command line. All debugging buttons are available in this state.

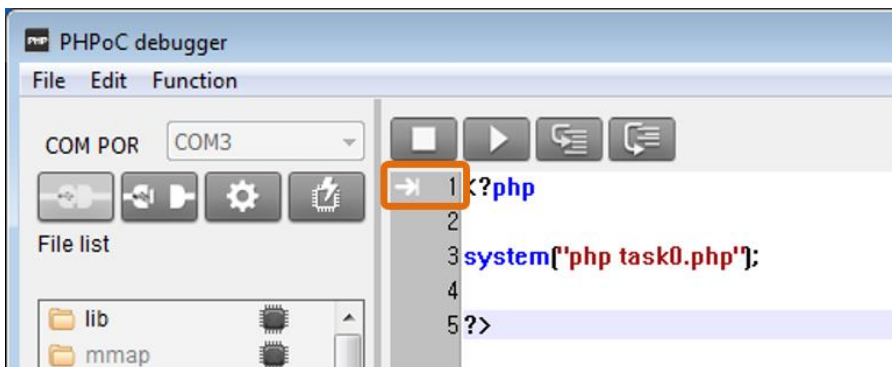


Figure 3-13 enable debug mode (2)

3.6.3 Escape Infinite Reboot Problem

PHPoC basically runs scripts when it boots up. Therefore, it is possible that a P4S-342 cannot be escape from infinite reboot by system command such as "reboot". To solve this problem, it is required to stop the running script. Refer to the following.

① Entering ISP mode

Make P4S-342 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.

② 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.

③ 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.

④ Correct source code

Correct the source code to prevent infinite reboot state.

4 Technical Support and Warranty

4.1 Technical Support

Sollae Systems operates PHPoC forum web site. This forum is for solving problem, asking questions and sharing opinions among PHPoC users.

- PHPoC Forum: <http://phpoc.com>

4.2 Customer Support

If you have any question regarding products, service and others, visit message board of Customer Support on Sollae Systems' web site or send us an email:

- Website Address for Customer Support: <http://www.eztcp.com/en/support/>
- E-mail: support@eztcp.com

4.3 Warranty

4.3.1 Refund

Upon the customer's request to refund the product within two weeks after purchase, Sollae Systems will refund the product.

4.3.2 Free Repair Services

For product failures occurring within two years after purchase, Sollae Systems provides free repair services or exchange the product. However, if the product failure is due to user's fault, repair service fees will be charged or the product will be replaced at user's expense.

4.3.3 Charged Repair Services

For product failures occurring after the warranty period (two years) or resulting from user's fault, repair service fees will be charged and the product will be replaced at user's expense.

5 Precaution and Exemption from Liability

5.1 Precaution

- Sollae Systems is not responsible for product failures occurring due to user's alteration of the product.
- Specifications of the product are subject to change without prior notice for performance improvement.
- Sollae Systems does not guarantee successful operation of the product if the product was used under conditions deviating from the product specifications.
- Reverse engineering of firmware and applications provided by Sollae Systems is prohibited.
- Use of firmware and applications provided by Sollae Systems for purposes other than those for which they were designed is prohibited.
- Do not use the product in an extremely cold or hot place or in a place where vibration is severe.
- Do not use the product in an environment in which humidity is high or a lot of oil exists.
- Do not use the product where there is caustic or combustible gas.
- Sollae Systems does not guarantee normal operation of the product under the conditions a lot of noise exists.
- Do not use the product for a purpose that requires exceptional quality and reliability relating to user's injuries or accidents – aerospace, aviation, health care, nuclear power, transportation, and safety purposes.
- Sollae Systems is not responsible for any accident or damage occurring while using the product.

5.2 Exemption from Liability

5.2.1 English version

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The P4S-342 is not designed and not authorized for use in military applications, in nuclear applications, in airport applications, in applications involving explosives, in medical applications, in security alarm, in a fire alarm, in applications involving elevators, or in embedded applications in vehicles such as but not limited to cars, planes, trucks, boats, aircraft, helicopters, etc.

In the same way, the P4S-342 is not designed, intended, authorized to test, develop, or be built into applications where failure could create a dangerous situation that may result in financial losses, damage to property, personal injury, or the death of people or animals. If you use the P4S-342 voluntarily or involuntarily for such unauthorized applications, you agree to subtract Sollae Systems Co., Ltd. and its distributors from all liability for any claim for compensation.

Sollae Systems Co., Ltd. and its distributors entire liability and your exclusive remedy shall be Sollae Systems Co., Ltd. and its distributors option for the return of the price paid for, repair, or replacement of the P4S-342.

In no event shall Sollae Systems Co., Ltd. and its distributors be liable for loss of user program codes which are stored in P4S-342.

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5.2.2 French version

- Documentation

La documentation du P4S-342 est conçue avec la plus grande attention. Tous les efforts ont été mis en œuvre pour éviter les anomalies. Toutefois, nous ne pouvons garantir que cette documentation soit à 100% exempt de toute erreur. Les informations présentes dans cette documentation sont données à titre indicatif. Les caractéristiques techniques peuvent changer à tout moment sans aucun préavis dans le but d'améliorer la qualité et les possibilités des produits.

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- Rappel sur l'évacuation des équipements électroniques usagés

Le symbole de la poubelle barré présent sur le P4S-342 indique que vous ne pouvez pas vous débarrasser de ce dernier de la même façon que vos déchets courants. Au contraire, vous êtes responsable de l'évacuation du P4S-342 lorsqu'il arrive en fin de vie (ou qu'il est hors d'usage) et à cet effet, vous êtes tenu de le remettre à un point de collecte agréé pour le recyclage des équipements électriques et électroniques usagés. Le tri, l'évacuation et le recyclage séparés de vos équipements usagés permettent de préserver les ressources naturelles et de s'assurer que ces équipements sont recyclés dans le respect de la santé humaine et de l'environnement. Pour plus d'informations sur les lieux de collecte des équipements électroniques usagés, contacter votre mairie ou votre service local de traitement des déchets.

6 Appendix

6.1 Device Information

6.1.1 Device overview

Device	Channel	Path	Note
UART	2	/mmap/uart0~1	
NET	1	/mmap/net1	
TCP	5	/mmap/tcp0~4	
UDP	5	/mmap/udp0~4	
디지털 I/O	1	/mmap/ui0	pin #0 ~ #21, #30, #31
ADC	2	/mmap/adc0~1	
ST	8	/mmap/st0~7	
HT	4	/mmap/ht0~3	
SPI	1	/mmap/spi0	
I2C	1	/mmap/i2c0	
RTC	1	/mmap/rtc0	
UM	4	/mmap/um0~3	
NM	2	/mmap/nm0~1	

Table 6-1 device overview

☞ *Refer to the "Device Programming Guide for P40" for detailed information about using devices.*

7 Revision History

Date	Version	History	Author
2015.10.02	1.0	Created	Roy LEE
2015.11.06	1.1	Revised P4S-342 H/W Image and Dimension	Sara LEE