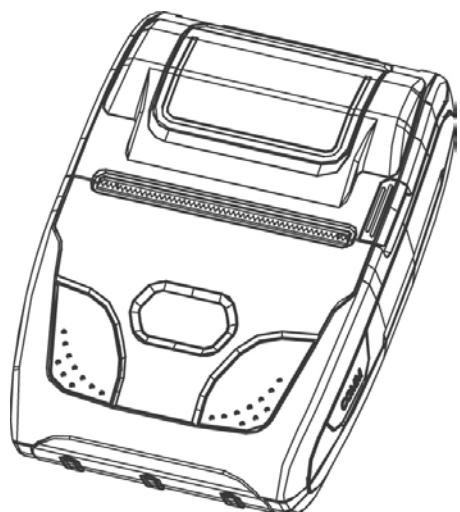


MODEL **WSP-R241**

(2inch Mobile Printer)

Rev. 1.6



וּסְמִינְיָה מִכְלָעָה

All specifications are subjected to change without notice

## ■ Copyright

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## ■ Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or removed the cable on the rear side, in order to guard the printer against the static electricity.

If the printer is damaged by the static electricity, you should turn the printer "OFF".

## ■ Notice

The contents of this manual are subject to change without notice.

## ■ Introduction

The **WSP-R241** is suitable designed for use with a growing variety of mobile devices. Bluetooth/USB interfaces make the WSP-R241 the perfect comrade for applications such as point of transaction warehousing, distribution, point of sales, hospitality, gaming and healthcare.

The general features of **WSP-R241** printer are as follows:

- ▶ Pocket size (79.5 x 114.3 x 43.5mm)
- ▶ Light weight (197.2g) for true mobility.
- ▶ Very silent printing thru direct thermal printing method.
- ▶ High speed(100mm/sec, MAX)
- ▶ High resolution(203dpi : 8dots/mm)
- ▶ USB, Bluetooth V5.2 interface
- ▶ Intuitive LED's indicate Power(on/off), Error, Bluetooth status, Battery status
- ▶ Support Magnetic Stripe Reader [option]
- ▶ Support text and graphic printing.
- ▶ Easier paper loading by CLAMSHELL design.
- ▶ One touch paper cover
- ▶ Printer door open & Paper-out sensor
- ▶ Easier maintenance with self-diagnostics.
- ▶ In field programming – Update Firmware, Download Fonts and Logos
- ▶ Microsoft Windows/Windows CE, Linux, Android, iOS compatible
- ▶ Free fall: 1.5M drop resistance
- ▶ Flow control : Software (XON/XOFF)

※ Hardware flow control not supported in printer.

## ■ Operating Precautions

Please follow the precautions below to enjoy and maintain the full performance of the printer.

### ► Using the Printer

- Be careful not to drop or bump the printer on a hard surface.
- Do not install the printer in direct sunlight or such areas.

Suitable environment for the use of the printer is as follows:

- ◆ Operating temperature: -10°C to 50°C
- ◆ Relative humidity : 30% to 80%

- Do not install the printer near devices that generate strong electromagnetic fields such as a copy machine.
- Do not open the platen cover during printing .
- Do not remove or reinstall the communication cable during printing or transmission.
- Do not touch the connectors of the communication during printing.
- Switch the POWER OFF when not in use.
- Do not use other solvent.
- The AC adapter, the battery charger and the battery pack may become warm when in use.  
This is normal and is not a malfunction.
- When the battery pack is used at low temperature, the length of time the printer can be used may be shortened.

### ► Thermal Paper Handling

- Store the thermal paper in a cool, dry and dark place.
- Do not rub the paper with hard object.
- Do not leave the paper with hard object.
- Do not allow plastic film, erasers, or adhesive tape to touch the paper for long periods.
- Do not stack the thermal paper with diazo copies immediately after copying or wet-type copies.
- Do not use chemical glue.
- Always use the clean thermal paper.

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**Federal Communications Commission**  
**Radio Frequency Interference Statement**  
FCC ID : QDDWSP-R241W

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.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** 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 or more 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.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

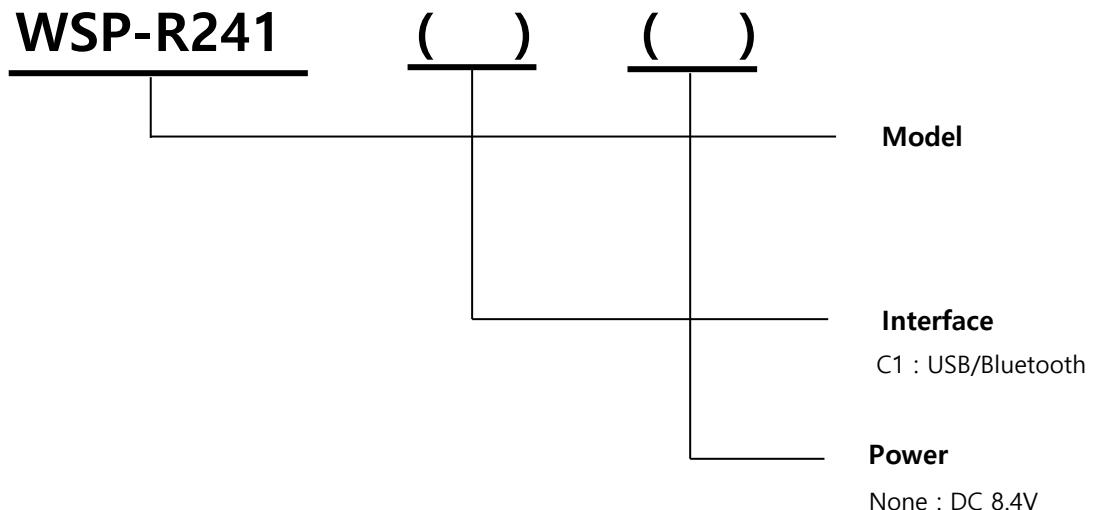
This Device has been evaluated to comply with RF exposure requirement for general use limit in portable condition. It is safe to be used in sold condition.

**CE WARNING**

- Changes and modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- It is desirable that it be installed and operated with at least 20cm or more between the radiator and person's body. (excluding extremities hand, wrists, feet, and ankles)

# 1. Outline

## 1.1. Model classifications



## 1.2 Symbol

	<b>Standby symbol</b> IEC 5009, the standby symbol(line partially within a broken circle), Indicates a sleep mode or low power state.
	<b>Direct current symbol</b> This symbol is found on many electronic devices that either require or produce direct current.

### 1.3. Product Part Number System

<u>Model name</u> / <u>Interface Spec.</u>	
S40	<b>Wired</b>
SC30	A RS-232C
W25	B TTL
.	C USB
.	D RS-485
.	E Parallel
	Z None
	<b>Wireless</b>
	1 Bluetooth
	2 IrDA
	0 None

Example) 1. Porti-S40 UART/Bluetooth Part No. ⇒ S40/A1  
2. Porti-SC30 Bluetooth Only Part No. ⇒ SC30/Z1

Note) The above table is the interface format which is supported.  
But some of the interfaces are not supported according to the product  
and please contact us, if you have any questions regarding the interface.

## 1.4. Specifications.

Item	Specification
<b>Printing method</b>	Direct thermal line printing
<b>Character size</b>	- Font Size A: 12X24 / Font Size B : 9X24 / Font Size C : 8X16 - KOR : 24X24(16X24) / CHN, JPN : 24X24
<b>Characters per line</b>	- Font A : 32cpl / Font B : 42cpl / Font C : 48cpl - KOR : 16cpl(24) / CHN, JPN : 16cpl
<b>Character set</b>	Alphanumeric:95, Extended Graphics:128X50 pages, International:10, Simplified/Traditional Chinese, Japanese, Korean
<b>Resolution</b>	203dpi, 8dots/mm
<b>Print width</b>	2-inch (48mm, 384dots)
<b>Printing speed</b>	100mm / sec (MAX)
<b>Dimensions</b>	79.5 X 114.3 X 43.5mm 79.5 X 118.4 X 43.5mm (MSR)
<b>Weight (w/o paper)</b>	197.2g / 202.1g (MSR)
<b>Interface</b>	USB, Bluetooth V5.2 interface
<b>Paper supplied</b>	Thermal roll paper, Label roll (58mm wide, 40Ø)
<b>Barcode supplied</b>	1-dimension : UPC-A, UPC-E, EAN-8, EAN-13, CODE-39, CODE-93, CODE-128, ITF, CODABAR 2-dimension : PDF417, Micro PDF417, Truncated PDF417, QR-CODE, DATA Matrix, Maxicode Etc :GS1 databar
<b>Driver</b>	Microsoft Windows, Linux
<b>H/W spec.</b>	MCU : RX-32bit, RAM : 128M bit, FLASH : 64M bit
<b>Receive buffer size</b>	1M bytes
<b>Sensor</b>	Support Cover open, Paper, Label
<b>MSR (option)</b>	Triple tracks (1&2&3 Tracks Reading) *Supports 3DES & AES encryption

(Continue...)

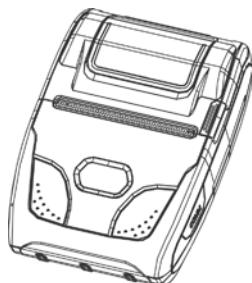
Item	Specification	
<b>Battery</b>	Rechargeable 7.4V DC , 1150mAh (Li-ion)	
<b>Battery duration</b>	1 hour continuous printing	
<b>Battery Charger</b>	Input (100~240V AC, 50~60Hz) Output(8.4VDC/0.8A), 4hours full charge time	
<b>Environment Conditions</b>	Temperature (operating)	0°C ~ 45°C (Charging) -10°C ~ 50°C (Discharging)
	* Under 0°C , density mode "high" is recommended.	
	Temperature (storage)	-20°C ~ 70°C (storage)
	Humidity	30% - 80% (operating) 10% - 90% (storage)
<b>Limited Warranty of Life</b>	Head	100Km

&lt; Table 1 &gt;

## 2. Setting up the printer

### 2.1. Printer & Accessories

Your printer box should include these items. If any items are damaged or missing, please contact your dealer for assistance.



WSP-R241



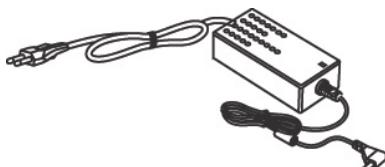
Battery Pack



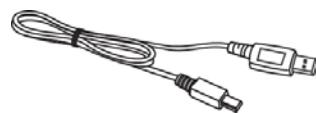
Thermal roll paper



Belt Clip

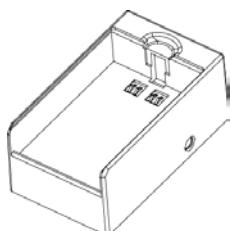
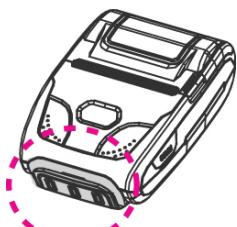


Battery charger



Communication cable

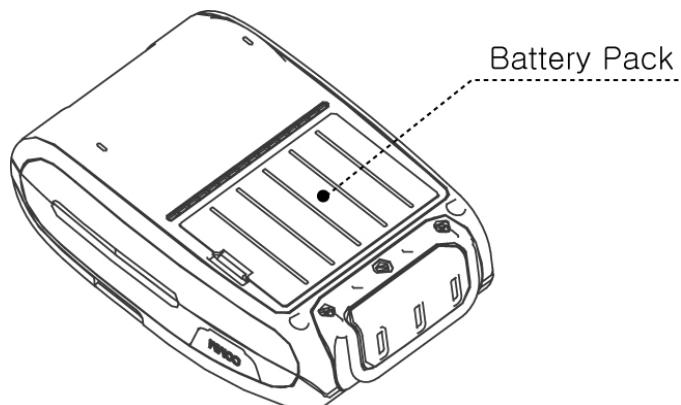
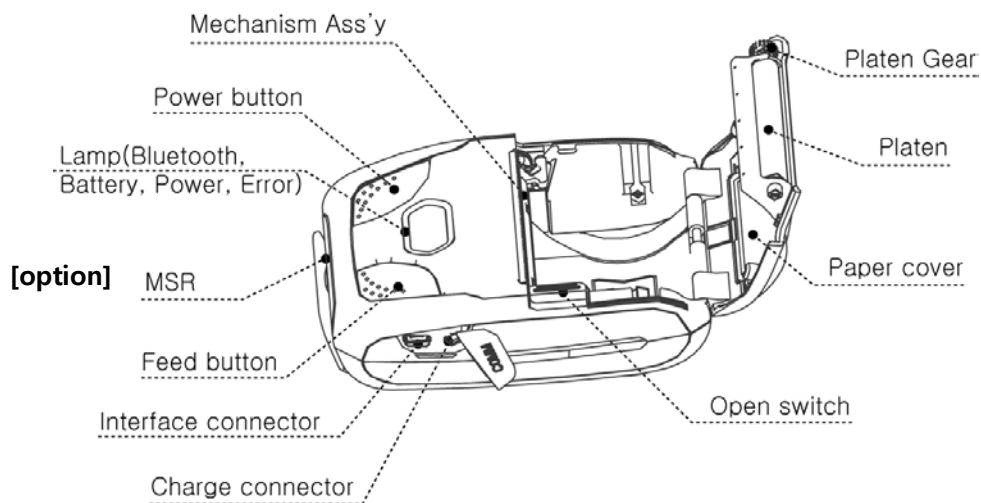
#### ▼ OPTIONAL

External Battery  
Cradle

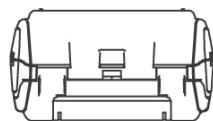
MSR

## 2.2. Printer Features

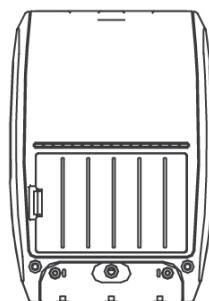
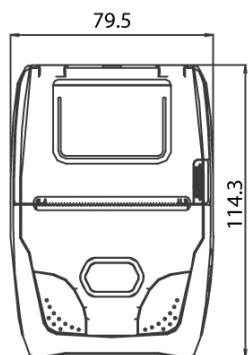
### ▶ Part Name



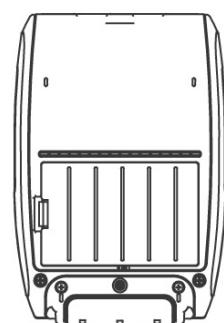
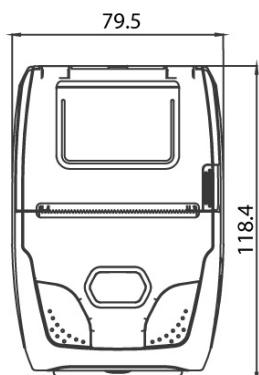
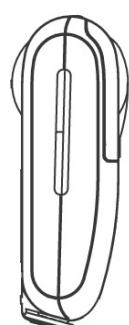
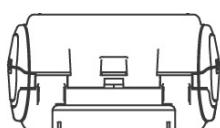
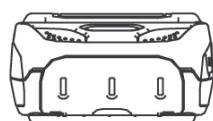
## 2.3. Dimensions



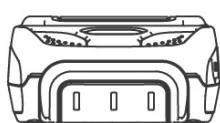
[Unit : mm]



None MSR



MSR

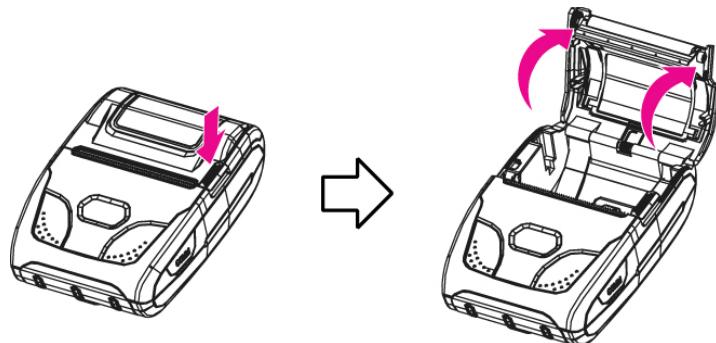


## 2.4. Replacing the paper roll

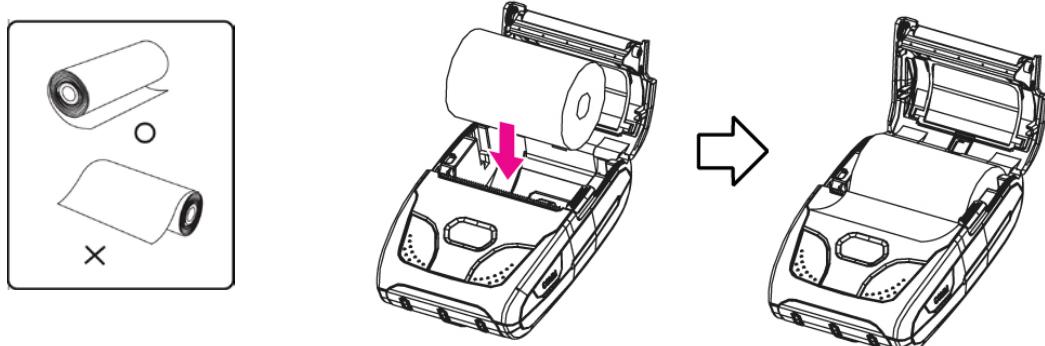
**Note** : Be sure to use paper rolls that meet the specifications.

Do not use paper rolls that have the paper glued to the core because the printer can not detect the paper end correctly.

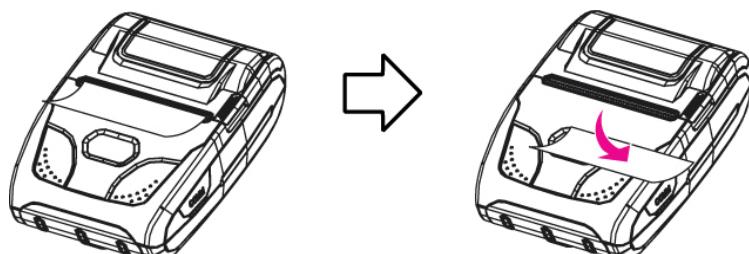
1. Make sure that the printer is not receiving data; otherwise, data may be lost.
2. Open the paper cover as the "One-Touch" way by pressing the button in the arrow direction like the picture.



3. Insert the paper roll as shown.



4. Tear the excess paper off using the edge of paper door as a tear bar.



## 2.5. Power supply

### 2.5.1. Internal power supply

The following specification is requested for Power supply.

Battery Charger : DC 8.4V/0.8A

Avoid using power supply which its power capacity of power current is extremely high.

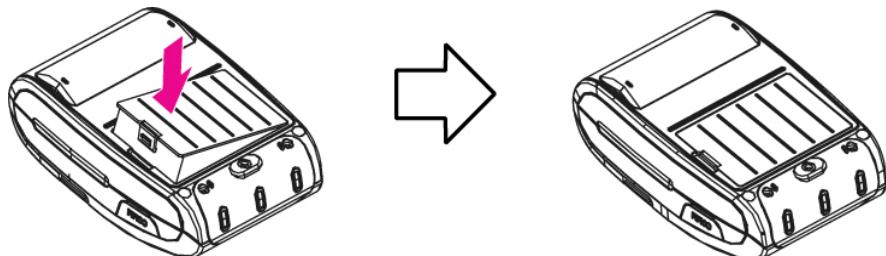
### 2.5.2. Installing the Battery

#### Warning :

- Before installing or removing the battery pack, ensure the printer is OFF.
- If the printer is not used for long period of time, remove the battery pack from the printer.
- Risk of explosion if battery is replaced by an incorrect type.  
Dispose of used batteries according to the instructions.
- Batteries are provided not being charged. Please charge the battery before use.

① To install battery pack, proceed as follows:

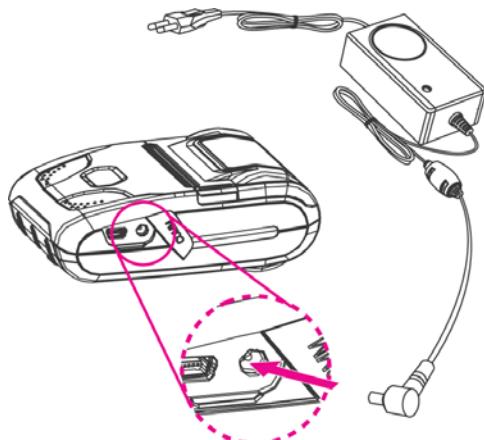
-Insert the Battery Connector in the direction of the arrow.



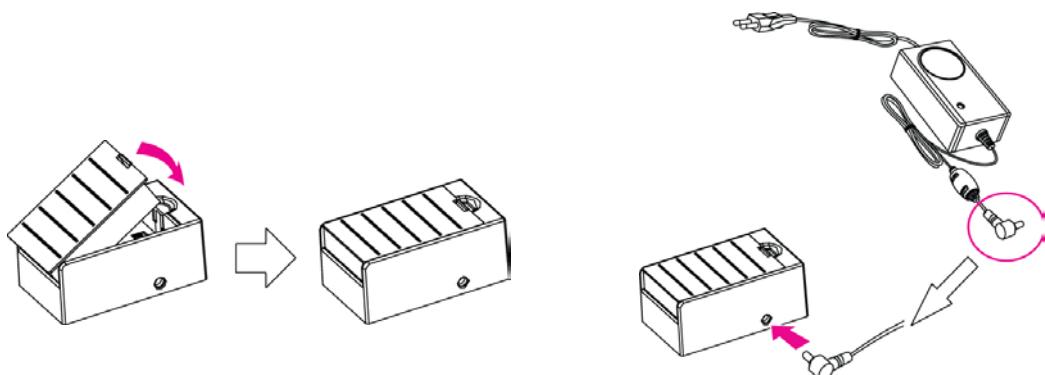
② To remove battery pack, proceed the above order reverse.

### 2.5.3. Recharging the battery

For recharging the battery pack, install the battery pack in the printer.  
Insert the Battery Charger to the charge connector of the printer.



Insert the Battery charger adaptor to the charge connector of the **External Battery Cradle**.



**NOTE :**

- While charging the printer, turn off the printer power.
- Do not remove the battery during charging.
- The battery is consumable parts and when purchasing, compared to the use hour is gradually decreases. (Warranty 6 month)
- If the printer is not used for a long time, unplug the power cord from the printer and outlet.
- The recharging time depends on the voltage level and ambient temperature of the battery.  
Normally, it takes about 4 hours to recharge a battery pack.
- You must use only the supplied adapter.
- Red Lamp : charging the battery.  
Green Lamp : charging is finished.

## 2.6. Set operation mode

In keeping on pressing the Feed and Power button simultaneously until after the **ERROR lamp** blinks 5 times, the printer comes out at the circumstance to change the printer mode.  
(refer to Table 2)

- **POWER button** : use for changing OPTION status. (**Error Lamp**)
- **FEED button** : use for changing MODE status. (**Power Lamp**)

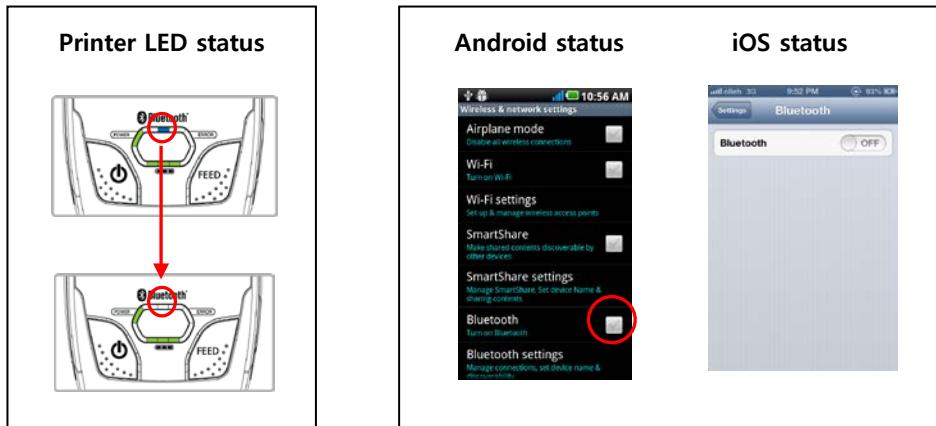
**\* Note**

No additional mode settings are required to connect Android or iOS devices.

\*\* If you want to change the Bluetooth Mode of printer, you need to disconnect the Bluetooth function of the current paired Smartphone.

**\*\* Methods :**

1. Turn off the Bluetooth function of the current paired Smartphone.  
(Blue LED is off.)
2. Change the printer mode.  
(Additionally, we want to recommend you to rest(OFF→ON) the printer and change mode.)



[Example] The defaults of the printer are :

**USB / Density Low / Mark No Use / Sensor High / PWDN 5 min slp**

If a user wants to modify the defaults with

**Bluetooth / Density High / Mark Use / Sensor Low / PWDN No Use**

- ▶ Press FEED & POWER Button during the **Error Lamp** flickers 5 times.  
→ You will see the **Power Lamp** and the **Error Lamp** flickers once.  
→ Press the **POWER Button** twice and the **Error Lamp** flickers 3 times.  
And then, interface mode has set to **Bluetooth** mode.
- ▶ When you press **FEED Button** once again, **Power Lamp** flickers 2 times and **Error Lamp** flickers once.  
→ Press **POWER Button** twice, **Error Lamp** flickers 3 times.  
And then the density has set to **Density high**.
- ▶ When you press **FEED Button** once again, **Power Lamp** flickers 3 times and **Error Lamp** flickers once.  
→ Press **POWER Button** once, **Error Lamp** flickers twice.  
And then the mark has set to **Mark use**.
- ▶ When you press **FEED Button** once again, **Power Lamp** flickers 4 times and **Error Lamp** flickers 4 times.  
→ Press **POWER Button** once, **Error Lamp** flickers once.  
And then the sensor has set to **Sensor Low**.
- ▶ When you press **FEED Button** once again, **Power Lamp** flickers 5 times and **Error Lamp** flickers 6 times.  
→ Press **POWER Button** 6 times, **Error Lamp** flickers once  
And then the power down has set to **Power down no use**.

If all the mode have set, press the **POWER Button** and the **FEED Button** at the same time. After then release the buttons at the same time.

**Bluetooth / Density High / Mark Use / Sensor Low / PWDN No Use**

## 2.7. Memory switch table

Mode		Option	Etc.	Mode		Option	Etc.
1	Communication Port	1	USB	5	Power Down	1	No use
		2	USB(Pro)			2	1min Sleep
		3	Bluetooth			3	2min Sleep
		4	Bluetooth(Pro)			4	3min Sleep
		5	Bluetooth(iAP)			5	4min Sleep
2	Density	1	Low	5	Power Down	6	5min Sleep
		2	Medium			7	1min Off
		3	High			8	2min Off
3	Mark	1	No use			9	3min Off
		2	Use			10	4min Off
4	Sensor sensitivity	1	Low			11	5min Off
		2	Medium1				
		3	Medium2				
		4	High				

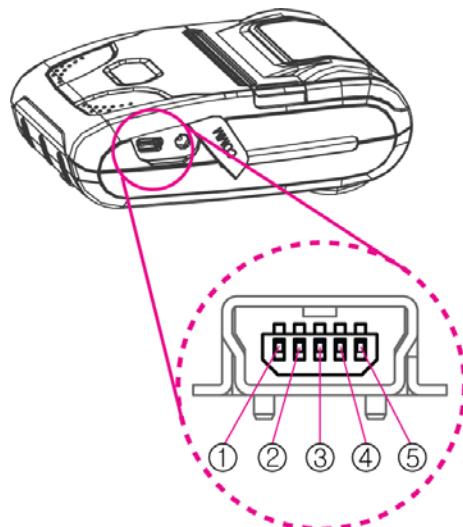
< Table 2 >

Notice : Bluetooth(iAP) is the mode which is used in iPod, iPhone and iPad Whole aspect.

Etc. (V): no function due to the specification of the product.

## 3. Interface

### 3.1. USB



(Fig.3.1)

The WSP- R241 printer has a USB interface and is connected by means of a 5 pin mini USB socket. In the following table, the signals present on the Mini- USB socket are listed:

Pin No.	Name	Function
1	VCC	+5V
2	DM	DATA “-”
3	DP	DATA “+”
4	NC.	-
5	GND	Ground

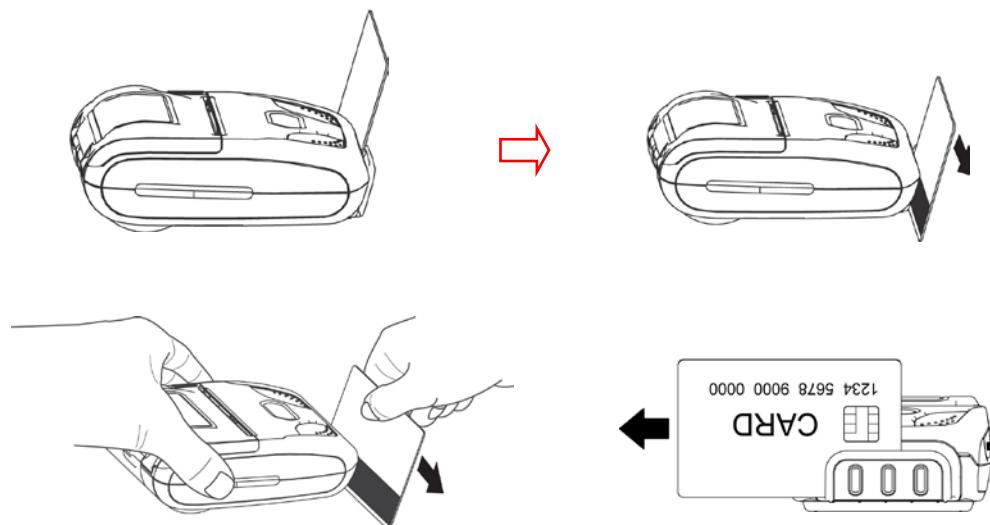
**NOTE :**

- If you connect the printer interface cable is converted to USB mode.
- When data receiving, when it removes the communication cable, it loses a data.

### 3.2. Bluetooth

Category	Specification
Bluetooth Spec.	Bluetooth V5.2 / Class2 (10m)
Frequency band	2402~2480 MHz
Protocol	L2CAP, RFCOMM, SDP
Profile	GAP, SDAP, SPP, GATT

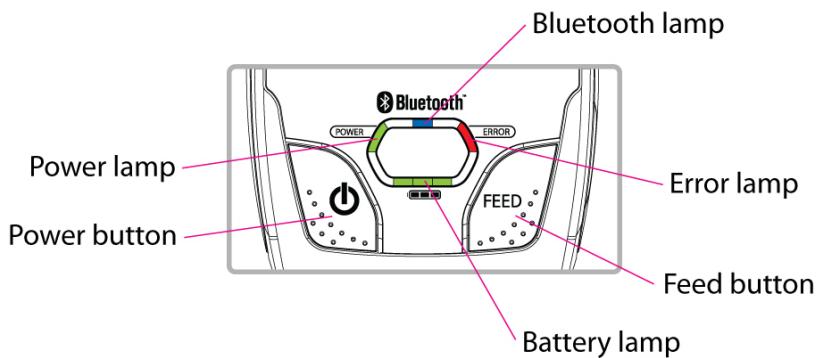
### 3.3. Read a magnetic stripe card (option)



- ▶ Check the direction of the magnetic stripe and read the card.
- ▶ Holding the card as shown above,  
please pass at a steady speed (check the direction of the arrow).
- ▶ When the card reading is successful, buzzer sound one time.  
If it fails, buzzer sounds three times.

## 4. Using the printer

### 4.1. Control panel



(Fig.4.1)

#### ► Button

- **FEED Button** : Use feed button to feed the paper continuously.
- **POWER Button** : This button is used to power on/off.  
When of 5 or more seconds presses and power comes to on or off.

: In keeping on pressing the **Feed and Power button** simultaneously until after the **ERROR lamp** blinks 5 times, the printer comes out at the circumstance to change the printer mode.  
(Refer to **2.6. Set operation mode** for details about mode conversion)

#### ► LAMP

- **Power** : Printer is ON and ready to receive data.  
**(GREEN)**
- **Error** : Indicates a fault condition or a printer error.  
**(RED)** (details: no paper, paper cover opened. etc.)
- **Bluetooth** : Indicates a Bluetooth connection status.  
**(BLUE)**
- **Battery Power** : These lamps(Green) indicated the battery power remaining.  
**(GREEN)** The battery gain in quantity and these lamps are on the decrease.  
If so, you must recharge the battery by using the battery charger.

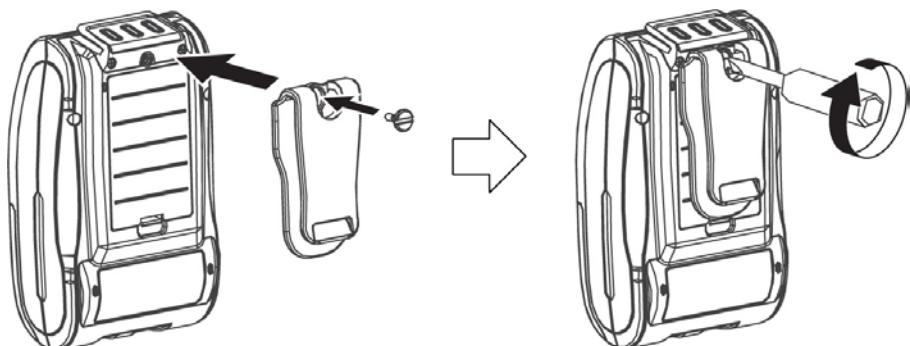
## 4.2. The self test

Self-Test prints out the current setting value of printer. The way of self-test is as follows.

1. Insert proper paper into the printer.
2. Power on while pressing feed button to start self-test.
3. Printer will print out the current status. (F/W version and set contents)
4. And then pattern of characters will be printed out.
5. Self-test will be finished automatically and turned to the standby status.

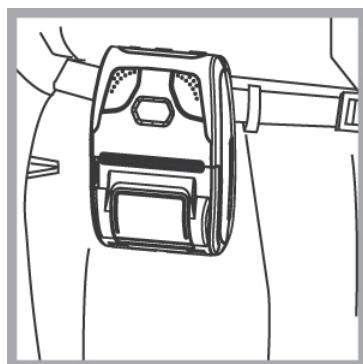
※ In case printer does not work properly, please contact Woosim customer service center.

## 4.3. Using the Belt clip



Following the instruction of the arrow, please put the belt clip in the hole and turn and fix the screw to the right by using a thing like a screw driver.

Afterward, you can use it like the picture below



## 5. Consumable Parts

### 5.1. Recommended paper

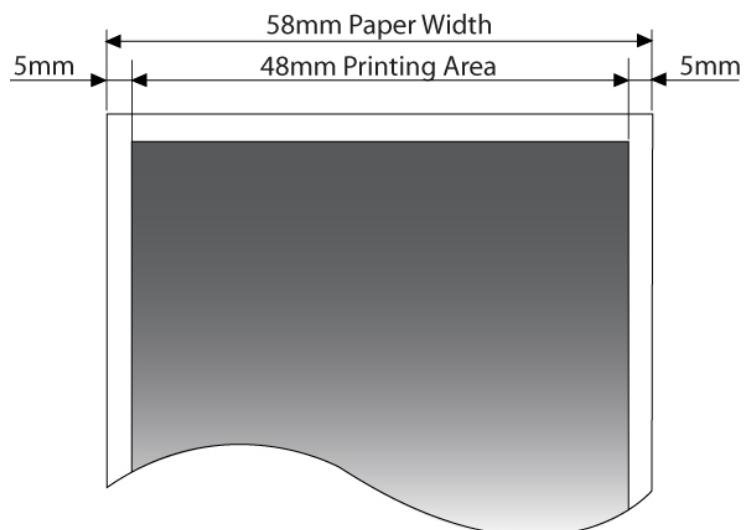
Type	: Thermal Paper
Paper width	: 58mm
Paper thickness	: $60\pm5\mu\text{m}$
Outer diameter	: $\varnothing40\text{mm}$ or less
Recording side	: Outside of roll



#### Cautions

1. Do not paste the paper to the core. And the roll paper which has Near end mark printing on its near end is recommended.
2. Chemicals or oil may change the color of paper, or printed Characters may fade.
3. Change of paper color starts from approx 70 °C.  
Pay attention to heat, humidity and sun light.
4. Color of paper may be changed by being scratched by nail or hard metal, etc

### 5.2. Printing position



## 6. Revision History

Date	Version	Comments	
Oct. 20. 2014	1.0	Initialize	
Jul. 15. 2015	1.1	p3,7,22	Bluetooth spec. update : Ver2.1+ EDR → Ver3.0+ EDR
		p3	Agency Approvals update
		p7,12	Dimension(MSR) modify
		p16	Mode setting modify(Android or iOS)
Oct. 28. 2015	1.2	p1,7,9,13,26	R231 product specifications update
		p3	Agency approvals update(CCC added)
		p6	Additional CE warning
		p7	Additional Symbol(standby, DC current)
		p3,9,22	Bluetooth spec. modify
		p10,11	Battery charger spec. & image modify
		p16	Additional battery warnings
		p19-20	Set operation mode update
		p21	Interface modify (UART part delete)
		p22	Read a magnetic stripe card image update
		p25	Using the belt clip image update
Mar. 07. 2016	1.3	p3,9	Weight update
		p22	3.3 Read a magnetic stripe card(option) update
Jun. 27. 2016	1.4	p16	Additional battery charging Notes
May. 16. 2017	1.5	Change page layout (B5→A4) * Delete address	
Sep. 21. 2022	1.6	M3X → M3W	

## 7. Regulatory Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### ISED Radiation Exposure Statement (For Canada)

This equipment complies with ISED radiation exposure limits set forth for an Uncontrolled environment.

### Avis d'industrie canada

(Pour le Canada)

Cet appareil est conforme aux limites d'exposition aux rayonnements d'Industrie Canada pour un environnement non contrôlé.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

REMARQUE : LE FABRICANT N'EST PAS RESPONSABLE DES INTERFÉRENCES RADIOÉLECTRIQUES CAUSÉES PAR DES MODIFICATIONS NON AUTORISÉES APPORTÉES À CET APPAREIL. DE TELLES MODIFICATIONS POURRAIENT ANNULER L'AUTORISATION ACCORDÉE À L'UTILISATEUR DE FAIRE FONCTIONNER L'APPAREIL.