



Specification: UHF RFID Long Range Gun type

Project Name : ASR-L251G

Model name: ASR-L251G-XX

Product name: Long Range Gun type Reader

Supplier Approval

Made by	Checked by	Approved by
HN Kim		
2019-08-05		

Customer Approval

Checked by	Checked by	Approved by

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	2/11 page	Revision Date	2019-08-05

Revision Descriptions

Rev	ECN	Description	Approved by	Date
XP101 XD101		Initial draft Revision.(Request ASX) Changed. Contents & Block-Diagram & Image. Changed. Test Range in Sec.8	HnKim	2019.4.8. 2019.8.5.

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	3/11 page	Revision Date	2019-08-05

Table of Contents

1. Scope	4
1.1. Introduction.....	4
1.2. Product Views	4
2. Block Diagram.....	5
3. Performance Specifications	6
3.1. UHF RFID Reader/Writer Module	6
3.2. Used Cell (INR18650-35E 3400mAh).....	7
3.3. DC Input Specification.....	7
3.3.1. Input Voltage Rating.....	7
3.3.2. Charging Voltage	7
3.3.3. Charging time.....	7
3.4. Using Time	7
3.5. LED description	7
3.5.1. Dual color LED display.....	8
3.5.1.1. Red LED	8
3.5.1.2 Green LED	8
3.5.2. Write LED.....	8
3.6. Protection function of Battery	8
3.6.1. Over Voltage Protection (OVP).....	8
3.6.2. Under Voltage Protection (UVP)	8
3.6.3. Over Load Protection (OCP-inner cell).....	8
3.6.4. Over Temp Protection (OTP)	8
3.7. Sleep Current	8
3.8. Barcode Engine (Optional).....	8
4. Environmental Requirements	8
4.1. Temperature	8
5. Mechanical Specifications	9
5.1. Dimensions (mm)	9
5.2. Lead-free/RoHS	9
5.3. AsLock Cradle	9

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	4/11 page	Revision Date	2019-08-05

1. Scope

1.1. Introduction

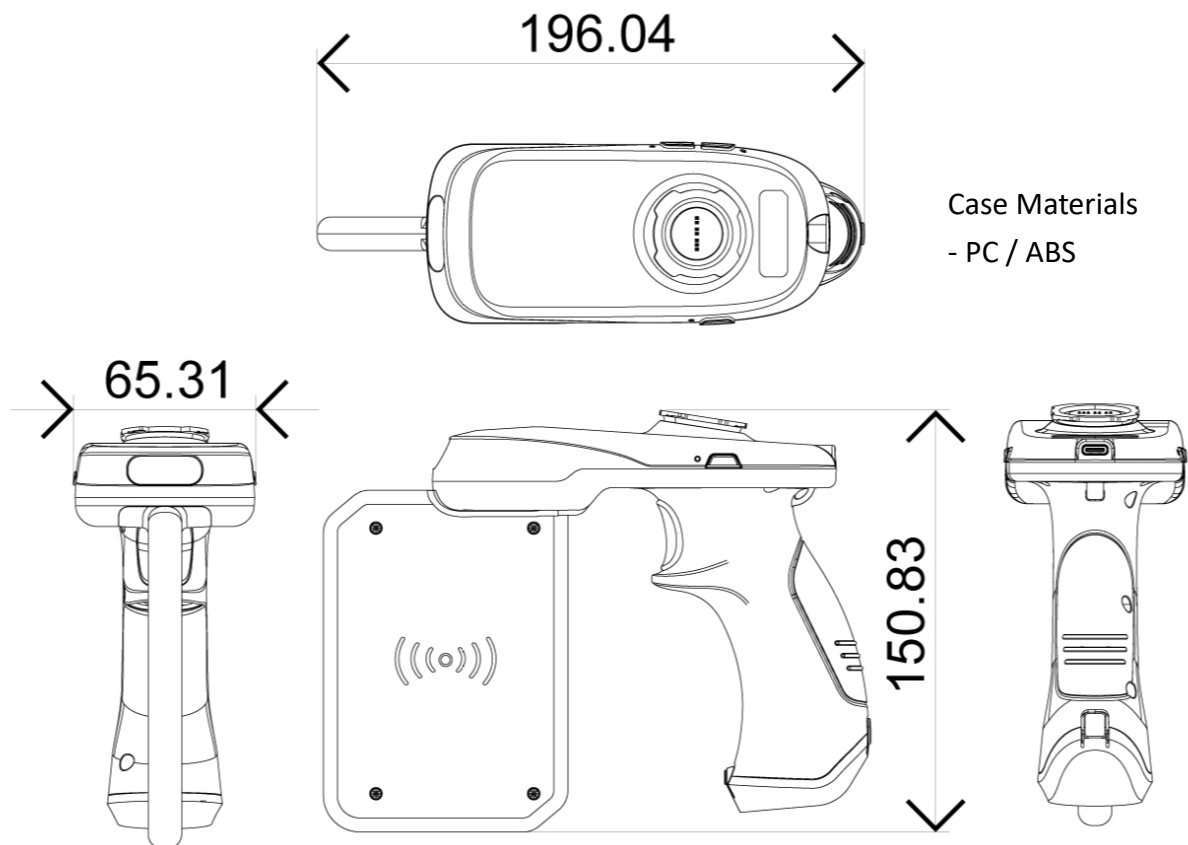
Mobile UHF RFID & Barcode reader combined Bluetooth Low Energy.

It complies RFID standard (EPC Class 1 Gen2 / ISO 18000-6C 900MHz UHF RFID), Op. Frequency is JPN or US, EU, KC, ETC.

It comply Barcode standard.

It interfaces through Target Devices and USB. It uses Li-ion battery (3400mAh) as internal power. Also it can charge Target Devices and RFID's battery at the same time by using USB C type.

1.2. Product Views



Status Indicate

LED

Sound

Vibrator

APP

Charging: USB C-Type

Read S/W: Trigger Button 1 ea

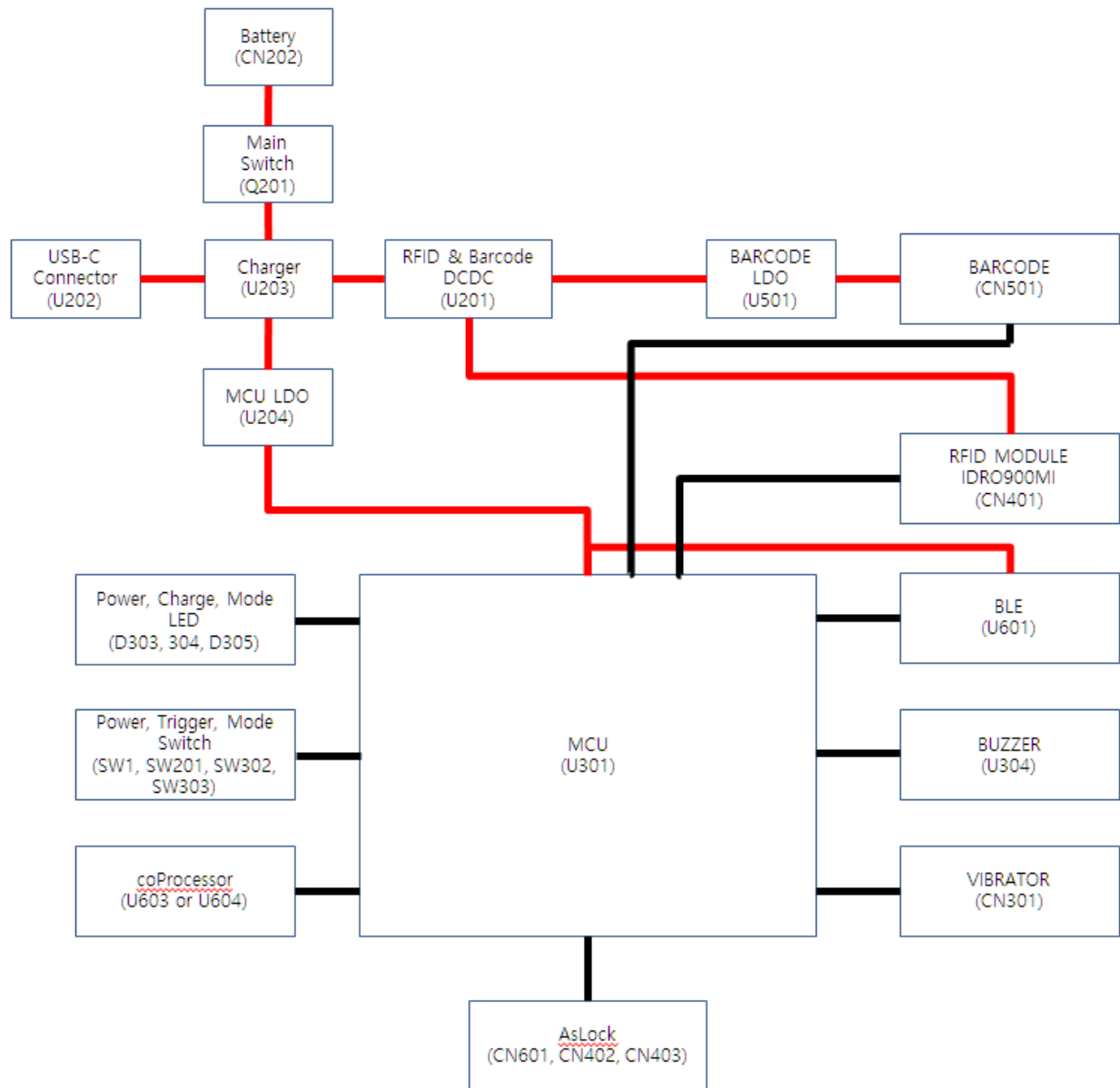
Mode S/W: 2 ea

Power S/W: 1ea

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	5/11 page	Revision Date	2019-08-05

2. Block Diagram



Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	6/11 page	Revision Date	2019-08-05

3. Performance Specifications**3.1. UHF RFID Reader/Writer Module**

RFID Reader Chip	IDRO900MI
Air Protocol	EPC C1G2 / ISO 18000-63
Interface	Bluetooth LE or Magconn Pin 2 (for Debugging to PC)
Operating Frequency	EU: 865.7 ~ 867.5MHz USA: 902.75 ~ 927.25MHz JAPAN: 916.8 ~ 920.4MHz
Output (EIRP)	Adjustable 5-30 dBm with 1 dB steps
RFID Read Distance	TBD
Antenna	Yagi (TBD)
Tag	Read, Write, Lock, Kill

Parameter	Min.	Typ.	Max.	Unit	Conditions
Supply Current (Active mode)			1250	mA	Transmit Power : +30dBm
Supply Current (Standby mode)			27	mA	PWR_ON enable
RX input impedance		50		Ω	
RX sensitivity		-74		dBm	
TX Power	+5		+30	dBm	
Frequency	860		960	MHz	See section 8
Channel bandwidth			200	kHz	
Channel Dwell time			0.4	Sec.	Case in Japan
Carrier sensing time	5			ms	Case in Japan
Carrier sensing level		-74		dBm	Case in Japan
Transmission time			4	Sec.	Case in Japan

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	7/11 page	Revision Date	2019-08-05

Parameter	Min.	Typ.	Max.	Unit	Conditions
PWR_ON Enable					
V _{IH}	1	3.3	5	V	
V _{IL}	-0.3		0.4	V	
GPIO					
V _{IH}	2.0	3.3	3.6	V	
V _{IL}	-0.3		0.8	V	
UART					
Baud rate		115.2		kbps	
Parity		None			
Flow control		None			

3.2. Used Cell (INR18650-35E 3400mAh)

- Rechargeable lithium ion battery
- Diameter: Height(Max 65.25 mm), Diameter(Max. Ø 18.55 mm)
- Nominal Voltage: 3.6 Volt
- Rated capacity (nominal): 3400mAh
- Operating Voltage: 2.8 ~ 4.2V

3.3. DC Input Specification**3.3.1. Input Voltage Rating**

Input voltage: 3.7V

Adapter must use over 10.0 watt.

3.3.2. Charging Voltage

Battery fully charged voltage: 4.2V $\pm$ 1%

Battery charging current: 0.1 ~ 1.6 A $\pm$ 1%

Charging method: CCCV (constant current constant voltage)

3.3.3. Charging time

About 3.5hours at only charge

3.4. Using Time

It is vary depend on frequency of use. In standby mode, usable time is within 24 hours.

3.5. LED description

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	8/11 page	Revision Date	2019-08-05

3.5.1. Dual color LED display

3.5.1.1. Red LED

- Charging: Red LED ON
- Fully charged: Red LED off

3.5.1.2 Green LED

- Power ON: Green LED ON

3.5.2. Write LED

- Mode : User Defined..

3.6. Protection function of Battery

3.6.1. Over Voltage Protection (OVP)

When the cell voltage becomes higher than $4.275V \pm 0.05V$ during charging, charging is prohibited.
Over voltage condition is released when cell voltage is dropped under $4.075V \pm 0.15V$.

3.6.2. Under Voltage Protection (UVP)

When the cell voltage becomes lower than $2.50V \pm 0.05V$ during discharging, discharging is prohibited. Under voltage condition is released when the cell voltage rises over $2.9V \pm 0.15V$.

3.6.3. Over Load Protection (OCP-inner cell)

The output is shutdown if output current exceeds $10.0A \pm 1.0A$. When the output load is removed and charging starts again, output over load condition is released.

3.6.4. Over Temp Protection (OTP)

At charge condition, if unit case temperature is exceed $45^{\circ}C \pm 5^{\circ}C$, charge prohibited.

3.7. Sleep Current

Sleep current consumption (main power switch off) : less than 1mA(TBD)

Power down current consumption (under voltage cutoff) : less than 100uA

3.8. Barcode Engine (Optional)

It select by customer request.

Selectable engine:

1D : SE655, SE965

2D : N6683, SE2707, EM3396, EM50, ETC(Consult the manufacturer)

4. Environmental Requirements

4.1. Temperature

Operation: Discharge (-10 to $45^{\circ}C$), Charge (0 to $45^{\circ}C$)

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	9/11 page	Revision Date	2019-08-05

Storage (for shipping state): -20 to 60°C (1 month)

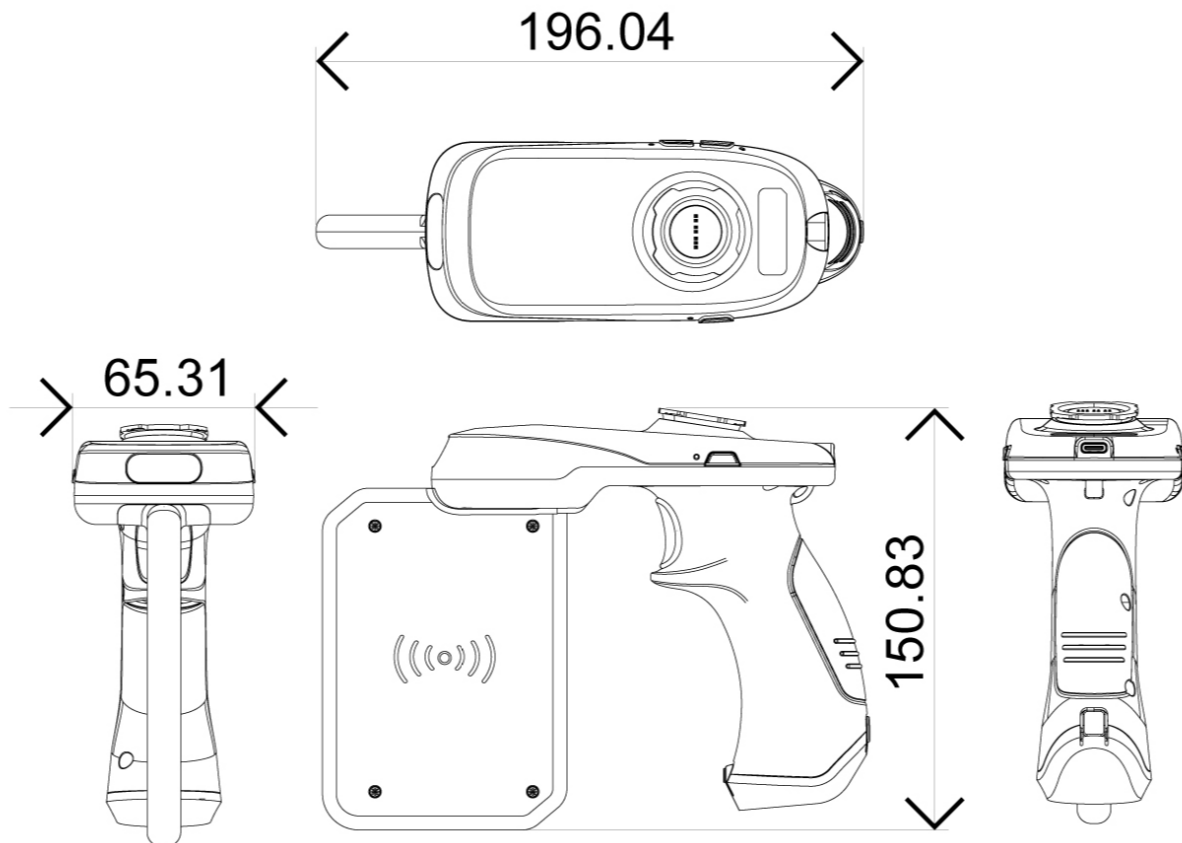
-20 to 45°C (3 month)

-20 to 20°C (1 year)

5. Mechanical Specifications

5.1. Dimensions (mm)

196.04 x 65.31 x 150.83 mm (Tolerance +/- 1mm)



5.2. Lead-free/RoHS

Less than 370g

5.3. AsLock Cradle

AsLock is a tool for opening management ports that are not accessible to the average user. With the AsLock, admin can connect in management mode and cable banding for easier carry.

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	10/11 page	Revision Date	2019-08-05



Certification and Safety Approvals FCC Compliance Statement

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.

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 on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antennae
- Increase the separation between the equipment and the 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.

FCC RF Exposure Statement

The highest SAR value reported under this standard during product certification for use next to the body with the minimum separation distance of 0mm is 1.794W/Kg. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter. This product is compliance to FCC RF Exposure requirements and refers to FCC website <https://apps.fcc.gov/oetcf/eas/reports/GenericSearch.cfm> search for

Smart Power Solutions, Inc.

Products	ASR-L251G	Reversion	XD101
Document No	SPEC-B00xx	Released	2019-04-8
Created By	HyoNam, Kim	Revised By	HnKim
Page	11/11 page	Revision Date	2019-08-05

FCC ID: 2AJXE-ASR-L251G-XX. The product should be forward-facing and shall not be used human body and hands.

FCC Caution

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