

# DQ Combo

# User Manual

**DUALi Inc.**

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## Revision History

- 2017.10.26 : Engineering specification draft
- 2018.07.05 (Ver. 1.00) : First Release

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We have our development center in South Korea to provide technical support. For any technical assistance can contact our technical support team as below;

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## 01. Introduction

DQ Combo is optimal combination reader of NFC & Barcode(1D/2D) . With its compact and sleek design will be suitable for retail solution, ID solution where user present NFC /HF contactless card as well as mobile wallet solution and membership based on QR& barcode.

This document contains hardware specification of DQ Combo

DQ Combo support USB & Serial interfaces for host communication

## 02. Specification

ITEM	Specification	Note
CPU	32bit ARM-CORTEX M4 RISC processor	168 MHz Operating frequency
Program Memory	1MBytes FLASH	
External Memory	SPI Flash (1Mbytes)	Optional
	SRAM (512Kbytes)	Optional
DISPLAY	4 Status LED (GREEN)	
	2 Lamp LED	
Communication	RS-232 (2CH)	Baud : 115200
	USB (USB 2.0 host)	
BUZZER	Magnetic Buzzer	2ea
Contactless communication	ISO 14443 A/B, Mifare, DESFire EV1 EV2, FeliCa, ISO 15693 , ISO18092 NFC, Cipurse	NXP PN5180
Contact SAM	4EA SAM Slot - ISO 7816	
MSR	Option	
	Imbedded MSR head (SamsungPay , LG pay)	
Input Power	DC 5V	

**02.1 RF PART Specification**

ITEM	Specification	Note
Radio frequency	13.56MHz	PN5180
Card communication speed	106,212,424,848 Kbps	
Sub carrier	847 KHz	
Input power	5V	

**02.2 SAM PART Specification**

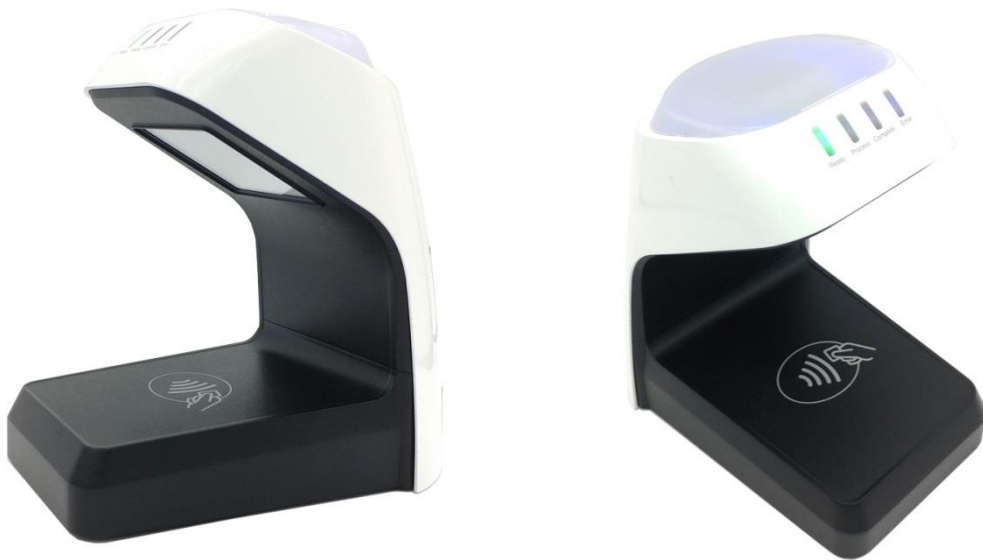
ITEM	Specification	Note
Protocol	T=0,T=1	
Class	Class A,B (5V, 3V)	
Quantity	4	

**02.3 Barcode /QR Reader Specification**

ITEM	Specification	Note
Voltage	3.3V ~ 5V	
Working current	200mA	
Standby current	90mA	
Peak current	300mA	
Image(Pixels)	640 pixels(H) * 480 pixels (V)	
Light source	Illumination:6500K LED	
Field of View	72°(H) * 64°(V)	
Roll / Pitch / Yaw:	360°, ±65° , ±60°	
Print Contrast:	20% minimum reflective difference	
Communication	TTL or USB	Baud : 115200
FPS	100FPS	
Motion Tolerances:	>2m/s	

1-D	UPC, EAN, Code 128, Code 39, Code 93, Code 11, Matrix 2 of 5, Codabar Interleaved 2 of 5, Mis Plessey, GSI DataBar, China Postal, Korean Postal	
2-D	PDF417, MicroPDF417, Data Matrix, Maxicode, QR Code, MicroQR, Aztec Hanxin	
Minimum Resolution	≥3.9 mil	
Decode range	6.88 mil (PDF417) : 0mm-50mm 10 mil (Data Matrix) : 0mm-50mm 13 mil (UPCA) : 5mm-110mm 20 mil (QR) : 0mm-150mm	Performance may be impacted by bar code quality and environmental conditions

### **03.Contents Confirmation**



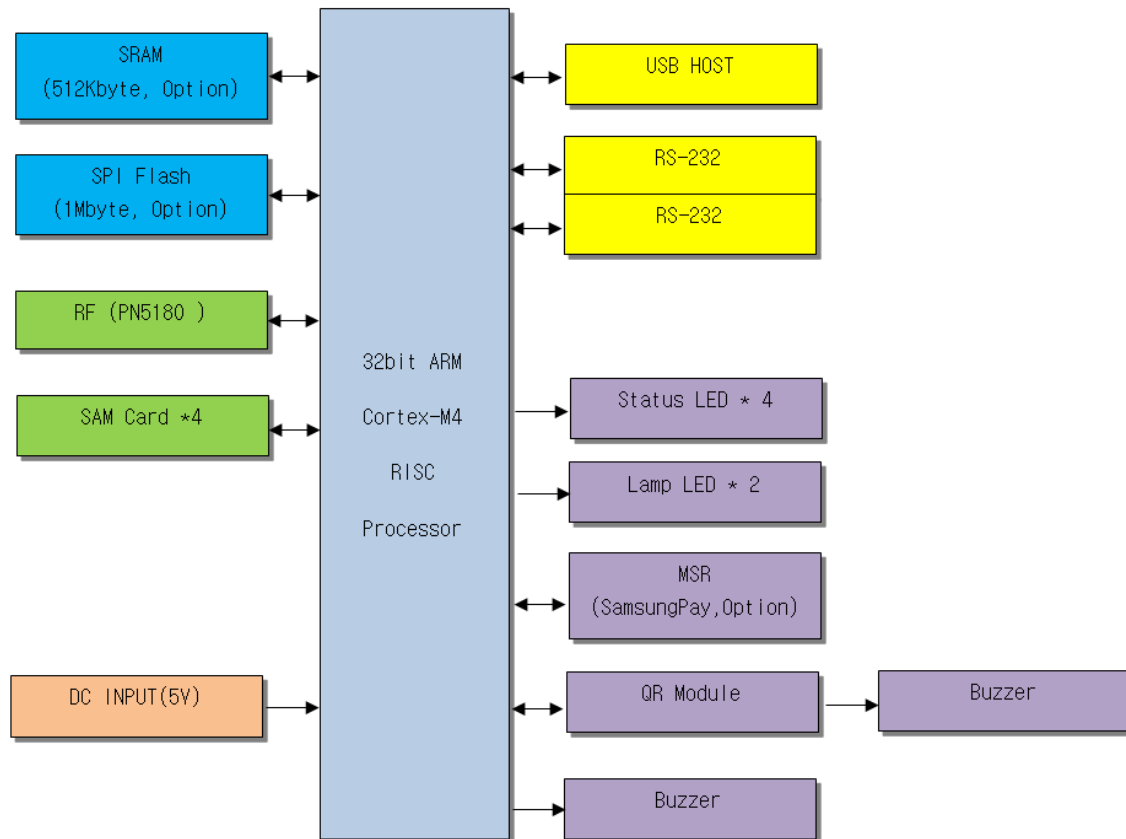
DQ Combo

Cable - Required cable (USB, RS232)



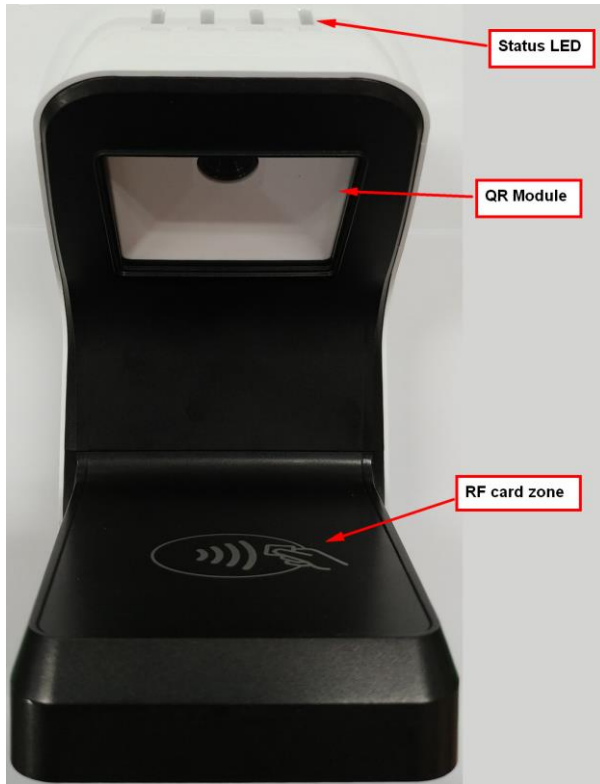
## 04. Configuration

### 04.1 Block diagram



- MAIN MCU : ARM CORTEX 32-bit M4 RISC processor
- SRAM , SPI Memory (option)
- RF module : NXP PN5180 support ISO14443 A/B, ISO15693, ISO 18092 NFC
- Host interface : USB, RS-232
- DISPLAY : 4 Status LED to show transaction process (Ready, Process, Complete, Error)
- Lamp LED : 2 x controllable LED
- Power : DC5V or USB 5V power (Consume power : 2W)
- SAM slot: 4ea, up to 153600bps.
- Controller able clock up to 18MHz by firmware.
- QR Reader : Connected via UART TTL
- MSR (Option) : to support SamsungPay, LG Pay MSR
- QR Generator (OPTION)

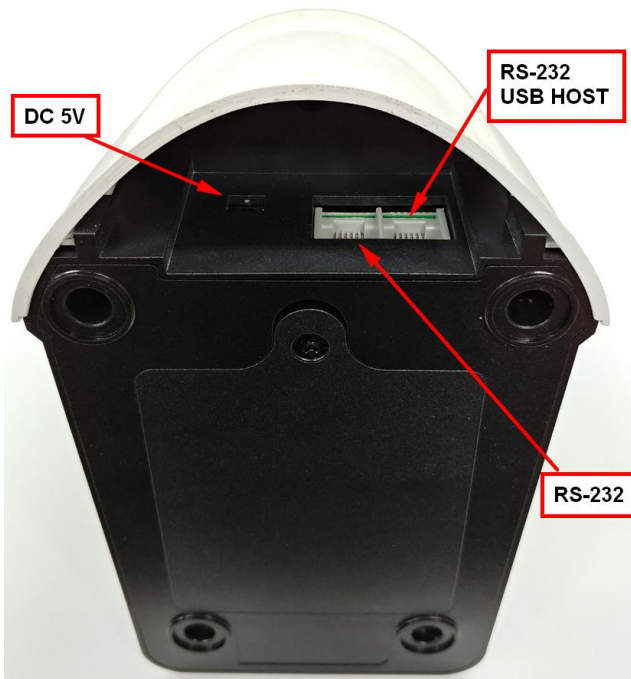
## 05. Exterior



< Front >



< Rear >



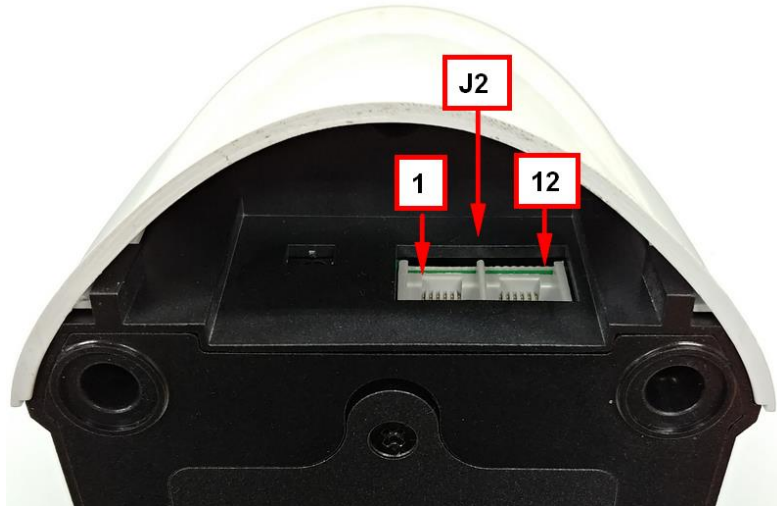
< Bottom >



< Side >

## 06. Interface Specification

### 06.1 Interface Specification



**J2 :** For power and communication (RJ11 x 2 Port)

- YMAW025-02 (YEONHO)

Port	PIN No.	DESCRIPTION
P O R T 1	1	NC
	2	RS-232_RX1
	3	RS-232_TX1
	4	PWR_IN (5V)
	5	GND
	6	NC
P O R T 2	7	USB_D-
	8	RS-232_RX2
	9	RS-232TX2
	10	PWR_IN (5V)
	11	GND
	12	USB_D+

## 07. Usage Environment

### Power

- Usage power: 5V / higher than 500mA
- Power consumption : 5V (ave. 350mA/ Max.450mA)

### Recommendable Operating Environment

- Temperature : 0 ~ 60 °C
- Humidity : 30 ~ 90 %

### Recommendable Storage Environment

- Temperature: -20 ~ 80 °C
- Humidity: 30 ~ 90 %

## 08. Warranty & Service

DUALiInc. warrants to the original consumer or other end user that this product, **DQ Combo**, is free from defects in materials and workmanship for a period of 1 year from the date of purchase.

### ※ Note

Warranty/non-warranty repair fees do not include shipping charges.

▶The damages(defaults) prescribed below are NOT to be covered by warranty.

-User's misuse of part/component against the provided manual.

-Fault by the unqualified user's own intention of repairs.

-Adding certain functions or extension of system.

### PRECAUTIONS

- Do not drop the device.
- Do not modify, repair, or disassemble.
- Do not expose directly to water, alcohol, benzene, etc for cleaning.
- Do not expose directly to flammables.
- Do not place or keep the device near flammables.

- 
- Keep the device away from excessive humidity and dust.
  - Do not place heavy objects on the device.
  - Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

\*Please contact our service team for the technical/ sales supports.

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