



DE-ABCM2 User Manual

DUALi Inc.

Document Version: 1.01

Last Revised Date: 10TH JAN 2012

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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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Revision History

- 23/04/2010 Ver.1.00: Issued first
- 10/01/2012 Ver.1.01: Added Chapter

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1 Introduction

1.1 Introduction

DE-ABCM2 is smartcard reader module which support ISO14443 TYPE-A/B ,Mifare, FeliCa plus ISO 7816 protocol. It is designed e-Payment system which require high-level of security

1.2 Specification

ITEM	Specification	Note
CPU	STM32F103RBT6 Cortes-M3(ARMv7),48MHz, 32bit RISC	
Program Memory	64KByte FLASH	
Data Memory	20KByte SRAM	
DISPLAY	Status LED(RED)	
Communication	RS-232, USB 1.1(option)	
BUZZER	Magnetic Buzzer	
RF CARD	ISO-14443 A/B, FeliCa, Mifare,	
Input power	DC 5V $\pm$ 10%(Max 0.3A)	

1.3 RF PART Specification

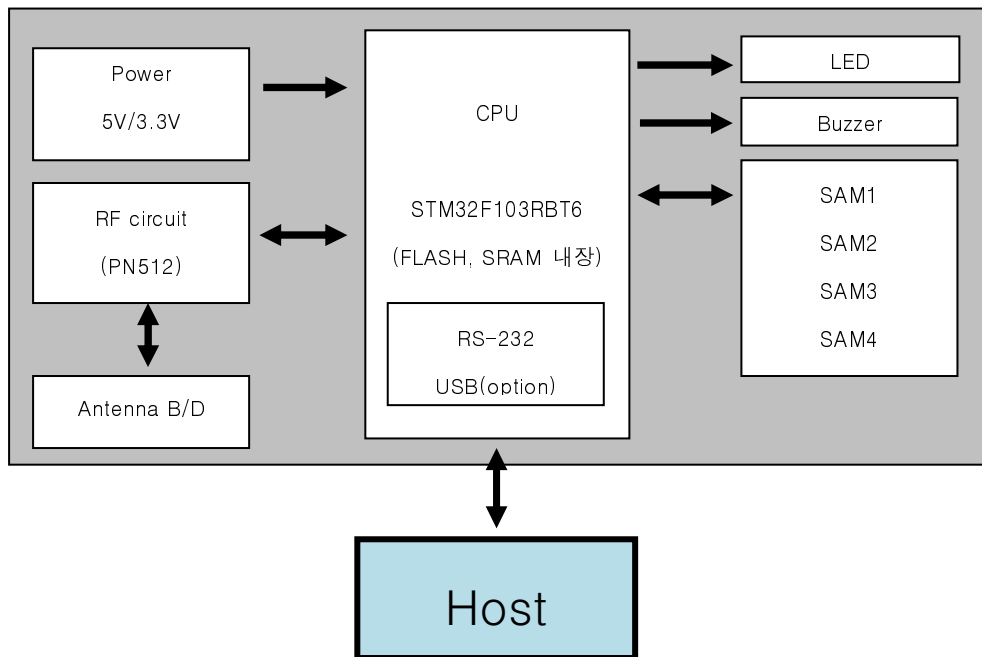
ITEM	PN512 Specification	Note
Card frequency	13.56Mhz	
Card communication speed	Up to 847 Kbps	
Subcarrier	847 KHz	
Power consumption	3.3V	

2 Components

2.1 Components confirmation

- Main Board
- Antenna Board

2.2 Block Diagram



2.3 Block Explanation

- MAIN CPU : 32bit RISC CPU_ STM32F103RBT6
- RF Controller : NXP사의 PN512- support ISO14443 & FeliCa card
Compose matching circuit for direct matching antenna
- Debug communication : use USB interface for debugging.
- Host communication: use RS-232 interface for Host communication.
- RF CARD communication: CPU controls communicating with PN512 by SPI.
- LED : CPU controls LED.
- Power : 5V power for operation

3 Power Specification

3.1 Power Specification

- DC 5V power($\pm 10\%$)

3.2 Current Consumption

- Basic current consumption : 150mA (5V)
- Max. current consumption : 350mA (5V)

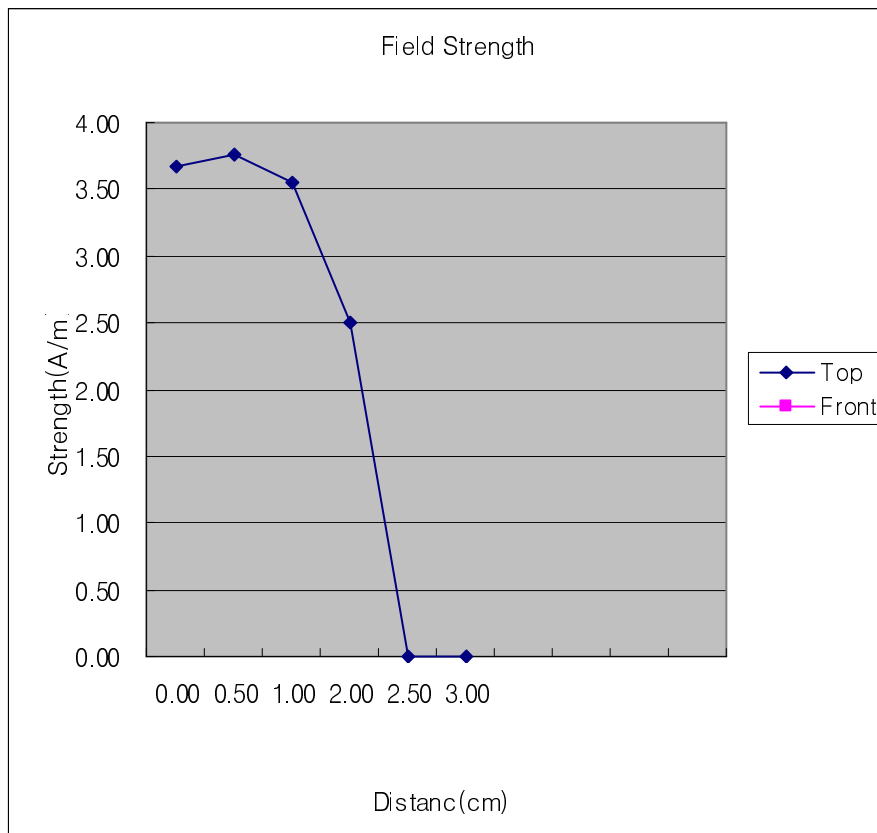
3.3 Interface communication specification

- Interface : RS-232C Serial Communication
- communication spec
 - speed : 115,200 bps
 - data bit : 8
 - parity : no parity
 - stop bit : 1

4. RF Characteristics

4.1 Power Output of Antenna

- Field strength : Min 1.5H (A/m) to Max 7.5



4.2 Frequency band

- Tolerance of the carrier frequency: 13.56 MHz $\pm 0.01\%$ = ± 1.356 kHz.
- Frequency bandwidth: ± 7 kHz.

It is comply with FCC limits for 13.56MHz frequency band

4 Function specification

4.1 Card reading

- Mifare : able to detect over 3cm (no Dead-zone)
- A-Type : able to detect over 3cm (no Dead-zone)
- B-Type : able to detect over 3cm (no Dead-zone)
- FeliCa : able to detect over 3cm (no Dead-zone)

4.2 Buzzer function

- it is possible to control buzzer on/off by communication

4.3 LED function

- it shows status using LED light
- Power LED : when it's power input, this led is on
- Status LED : it is possible to control LED on/off by communication.

5 Usage Environment

5.1 Recommendable operation environment

- Temperature : 0 ~ 40 °C
- Humidity : 30 ~ 90 % (Relative humidity)

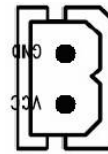
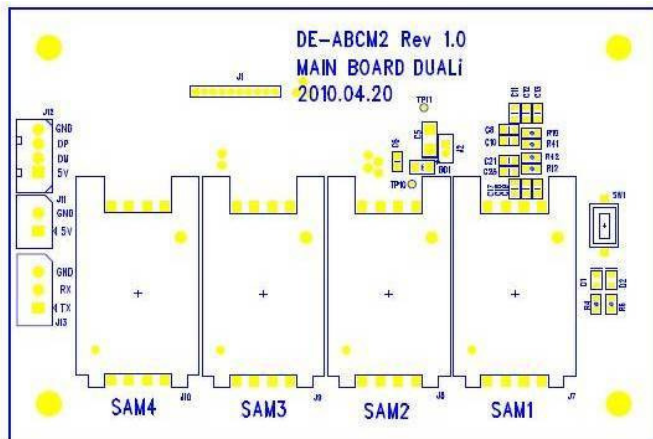
5.2 Recommendable storage environment

- Temperature : -10 ~ 70 °C
- Humidity : 30 ~ 90 % (Relative humidity)

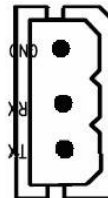
5.3 EMI

- satisfy the spec CISPR PUB. 22, CLASS B(environment features)

6 Connector Specification



2.5mm 2pin
Molex 5267-02



2.5mm 3pin
Molex 5267-03

7. Warning and Notice

- For indoor use only.
- This product is affected by an element like metal or Magnetism. So one has to take precautions.
- This device is not waterproof.

Warranty & Service

▸ Warranty and Repair service

- DUALi Inc. warrants to the original consumer or other end user that this product, DE-920, 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 any shipping charges.

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

- User's misuse of part/component.
- Fault by the unqualified user's own intention of repairs.
- Product's inspection requirement.
- Adding certain functions or extension of system.
- Fault by User's misuse against the product's manual.

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

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