

List

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1. Features:

- Frequency : 13.56MHz
- Tag : ISO14443A
- Antenna : 50Ω (Ext.)
- Interface : USB
- Baud-Rate : 9600, 8, n, 1 (default)
- Power Supply : 5V /400 mA (max)
- Standby current : 5V / 800uA
- Operating Temperature: 0 ~ 60 °C
- Operating Distance : 5cm (Avg.)

2. Pin Description

CON1: Antenna

1. TX1: Antenna Signal 1
2. TX2: Antenna Signal 2

CON2: Firmware Upgrade Set

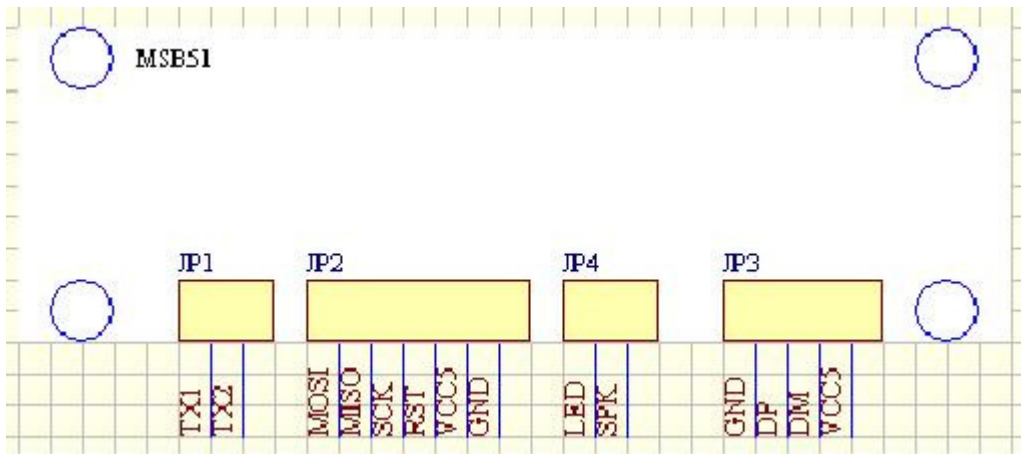
1. MOSI
2. MISO
3. SCK
4. RST
5. VCC5
6. GND

CON3: USB

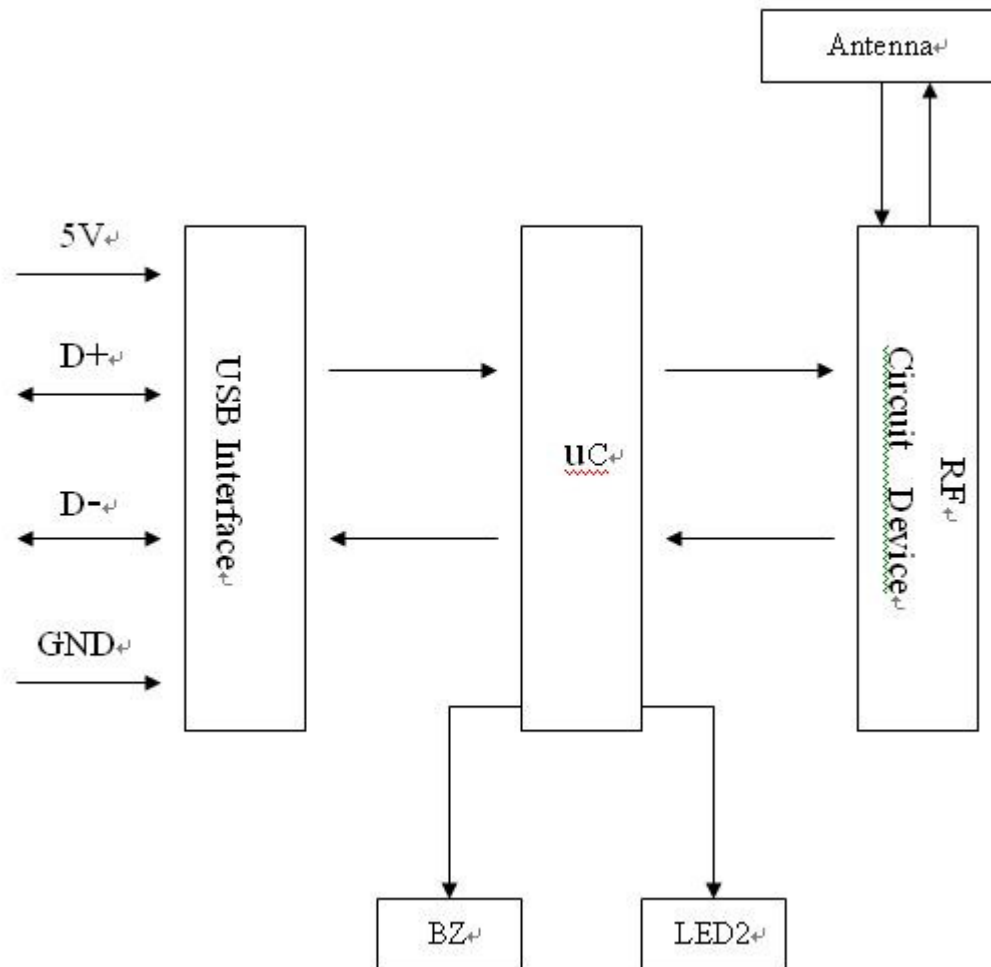
1. GND: Power Ground.
2. DP: USB port D+ signal
3. DM: USB port D- signal
4. VCC5: USB port 5V Power.

CON4: Display Device

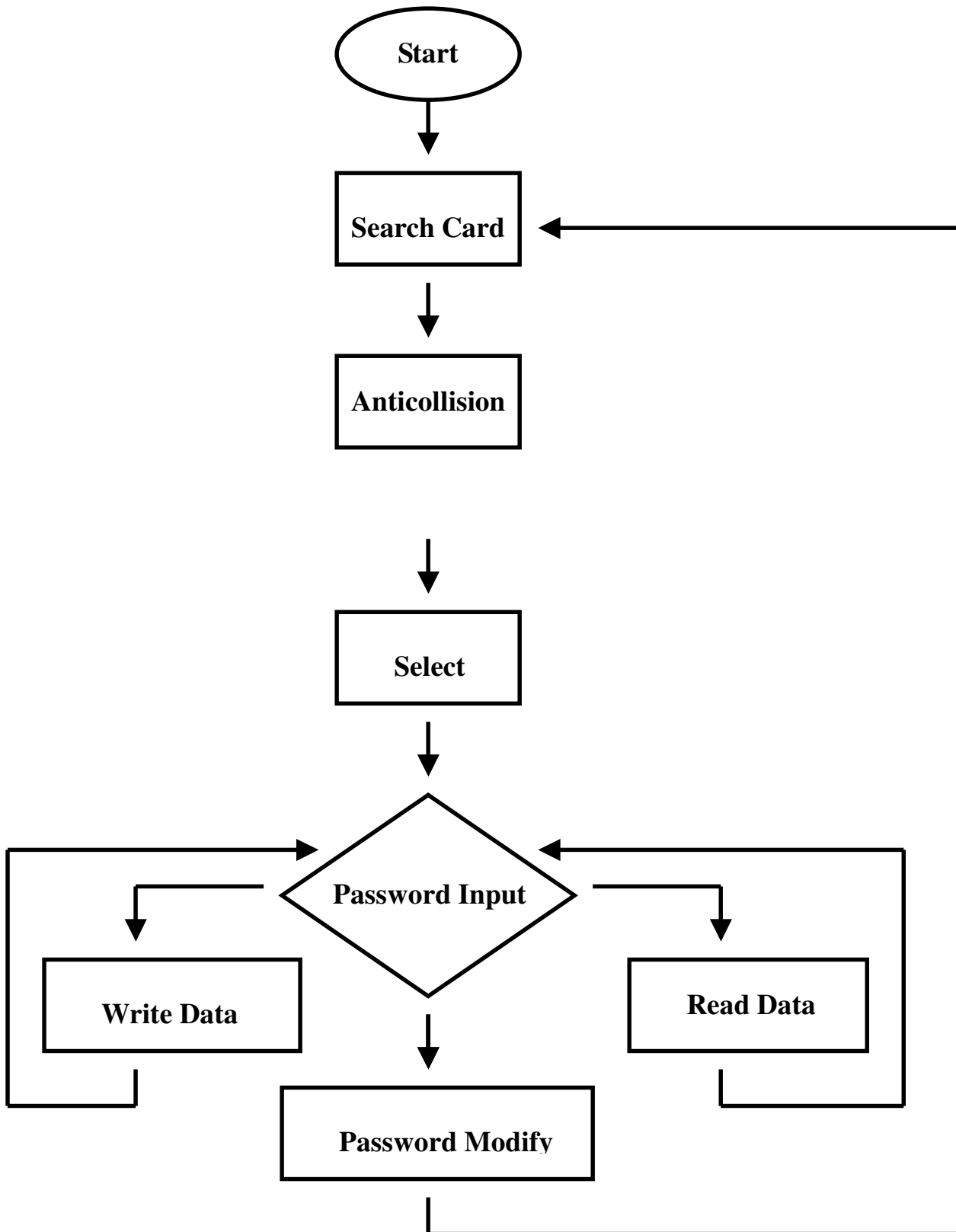
- 1.SPK: Buzzer Control
- 2.LED: LED Display



3. Module Block Configuration



4. Control Flow Chart



5. Commands and Protocol

5.1 Communication Format

| Data Packet Length (L) | Command | Data Packet |
|------------------------|---------|-------------|
| 1 Byte | 1 Byte | L-1 Byte |

5.2 Start (0x0B)

Command: 02 0B 0F

Response: 01 00

5.3 Search Card (0x02)

Command: 02 02 26

Response: 03 00 04 00 (S50)

03 00 02 00 (S70)

5.4 Anticollision (0X03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial Number)

5.5 Select (0X04)

Command: 01 04

Response: 03 00 80 86

5.6 Password Input (0X06)

Command: 09 06 60 01 FF FF FF FF FF FF (60 is PICC_AUTHENT1A(61 is PICC_AUTHENT1B),01 is Sector,12 F are Passwords)

Response: 01 00

5.7 Write Data (0x09)

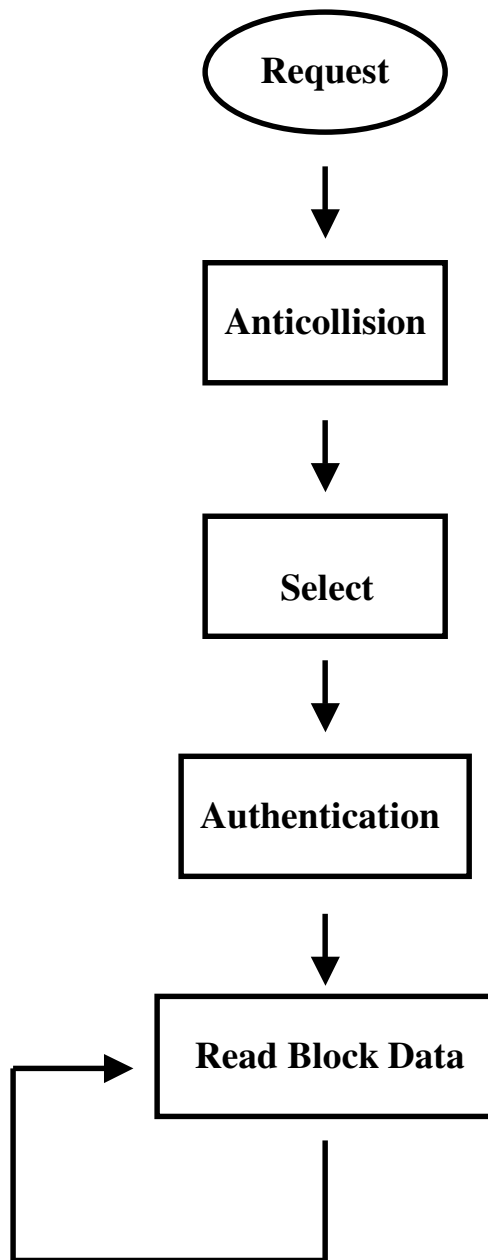
Command: 12 09 04 12 30 00 00 00 00 00 00 00 00 00 00 00 00 00

(04 is Block, 16 bytes begun 12 is the materials written)

Response: 01 00

5.8 Read Data (0X08)

5.8.1 Read Data Control Flow Chart



5.8.2 Request (0X02)

Command: 02 02 52

Response: 03 00 04 00 (S50)

5.8.2 Anticollision (0x03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial
Number)

5.8.3 Select (0X04)

Command: 01 04

Response: 03 00 80 86

5.8.4 Authentication (0X05)

Command: 04 05 60 01 04 (60 is PICC_AUTHENT1A(61 is
PICC_AUTHENT1B),01 is Sector,04 is RegFIFOLength)

Response: 01 00

5.8.5 Read Block Data (0X08)

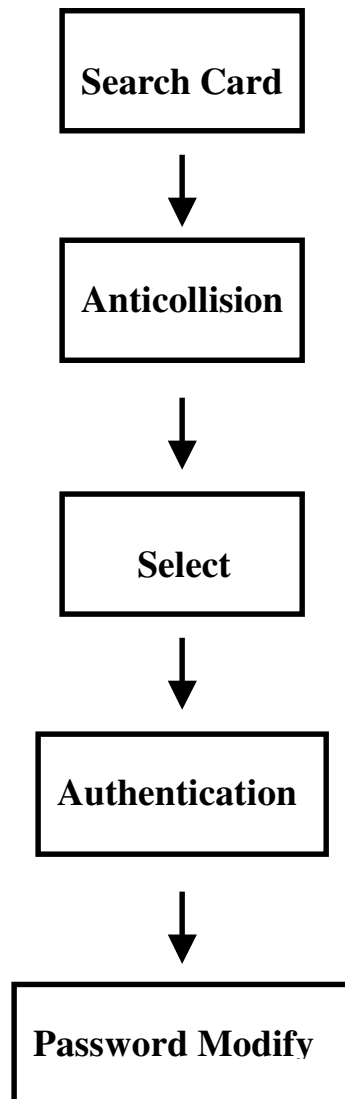
Command: 02 08 04 (04 is Block Number)

Response: 11 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

(16 bytes begun 00 is the materials Read)

5.9 Password Modify

5.9.1 Password Modify Control Flow Chart



5.9.2 Search Card (0x02)

Command: 02 02 26

Response: 03 00 04 00 (S50)

03 00 02 00 (S70)

5.9.3 Anticollision (0x03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial
Number)

5.9.4 Select (0X04)

Command: 01 04

Response: 03 00 80 86

5.9.5 Authentication (0X05)

Command: 04 05 60 01 04 (60 is PICC_AUTHENT1A(61 is
PICC_AUTHENT1B),01 is Sector,04 is RegFIFOLength)

Response: 01 00

5.9.6 Password Modify (0X09)

Command: 12 09 07 33 33 33 33 33 33 FF 07 80 69 33 33 33

33 33 33 (07 is Block Number, 12 bytes begun 33 is New

Password)

Response: 01 00

APPENDIX

1. Memory organization of the Tag Transponder(IC S50 for 1K)

| Sector | Block | Byte Number within a Block | | | | | | | | | | | | | | Description | | |
|--------|-------|----------------------------|---|---|---|---|-------------|---|---|---|-------|----|----|----|----|-------------------|----|--------------------|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | 14 | 15 |
| 15 | 3 | Key A | | | | | Access Bits | | | | Key B | | | | | Sector Trailer 15 | | |
| | 2 | | | | | | | | | | | | | | | | | Data |
| | 1 | | | | | | | | | | | | | | | | | Data |
| | 0 | | | | | | | | | | | | | | | | | Data |
| 14 | 3 | Key A | | | | | Access Bits | | | | Key B | | | | | Sector Trailer 14 | | |
| | 2 | | | | | | | | | | | | | | | | | Data |
| | 1 | | | | | | | | | | | | | | | | | Data |
| | 0 | | | | | | | | | | | | | | | | | Data |
| : | : | | | | | | | | | | | | | | | | | |
| : | : | | | | | | | | | | | | | | | | | |
| : | : | | | | | | | | | | | | | | | | | |
| 1 | 3 | Key A | | | | | Access Bits | | | | Key B | | | | | Sector Trailer 1 | | |
| | 2 | | | | | | | | | | | | | | | | | Data |
| | 1 | | | | | | | | | | | | | | | | | Data |
| | 0 | | | | | | | | | | | | | | | | | Data |
| 0 | 3 | Key A | | | | | Access Bits | | | | Key B | | | | | Sector Trailer 0 | | |
| | 2 | | | | | | | | | | | | | | | | | Data |
| | 1 | | | | | | | | | | | | | | | | | Data |
| | 0 | | | | | | | | | | | | | | | | | Manufacturer Block |

2. Outward Appearance

