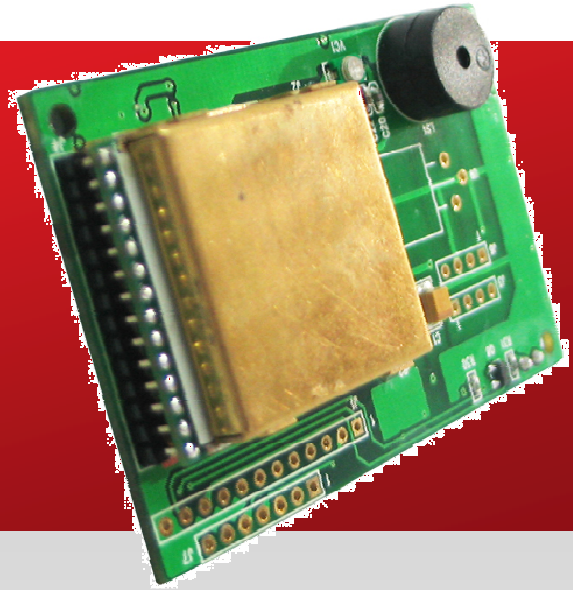




**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACM120S-SM Contactless Small Module



Technical Specifications

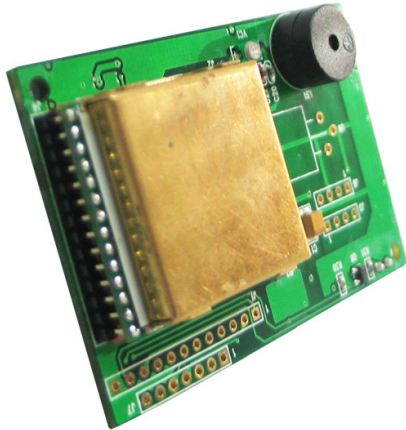


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## 1.0. Introduction



The ACR120 Small Module (ACM120S-SM) is a compact, easy-to-install and versatile contactless module.

ACM120S-SM not only retains the full functionalities of ACR120 contactless reader/writer, but also includes value-added features such as LED, buzzer and relay. It was developed based on the 13.56 MHz contactless smart card (RFID) technology, supporting Mifare and ISO 14443 Type A cards. Its proximity operating distance is up to 5 cm, depending on the type of contactless tag in use.

ACM120S-SM's small size allows it to be readily installed into any standard, single-gang electrical switchbox. This eliminates the hassle to drill any wall holes to house this contactless module. Your integration choice is not limited to customized casing but also handy electrical switchbox which is readily

available everywhere.

Small yet powerful, ACM120S-SM is ideal for a broad range of applications, especially physical access control and time and attendance. With merely a wave of contactless card, the module immediately returns you successful read/write signals via its self-contained LED/buzzer, and triggers the relay to open the door for you in a blink of an eye.



## 2.0. Features

- Compact size (70 mm x 45.3 mm)
- Serial RS232 interface
- Read and write functionality
- Built-in antenna for contactless tag access, with card reading distance of up to 50 mm
- Supports major contactless smart cards conforming to ISO 14443 Type A in the market
- Supports Mifare cards, including new Mifare Ultralight C and Mifare Plus SL1
- Built-in anti-collision feature (at least 1 card is detected when multiple cards are presented)
- Selective card polling capability (especially useful when multiple cards are presented)
- Easy-to-install for standard single-gang electrical switchbox
- Operation LED
- Buzzer
- Relay



### 3.0. Typical Applications



- Time and attendance
- Physical access control
- Logical access control
- Public transportation terminals
- Vending machines
- Automatic fare collection
- Metering



## 4.0. Technical Specifications

### 4.1. Configuration of ACM120S-SM reader

#### Serial Interface

Type ..... RS232 (Standard)  
 Operation Baud Rate ..... 9,600-115,200 bps  
 Supply Voltage ..... Regulated 5V DC (4.75 – 5.25V)  
 Supply Current..... approx. 40mA for standby mode; approx. 200mA for mode with contactless function on

#### Contactless Smart Card Interface

Standard..... ISO 14443 Type A  
 Protocol..... Mifare® Classics protocols  
 Smart card read / write speed..... 106 kbps

#### LED

LED ..... Green

#### Buzzer

Buzzer ..... Monotone

#### Relay

Relay Contact Rating ..... 1 A  
 Relay Control..... No pre-programmed duration; contact latching/releasing by software command

#### Antenna

Antenna Size ..... 42 mm x 48 mm  
 Operating distance ..... up to 50 mm

#### Operating Frequency

Operating Frequency ..... 13.56 MHz

#### Operating Conditions

Temperature ..... 0 - 50° C  
 Humidity ..... 10% - 80%

#### Certifications/Compliance

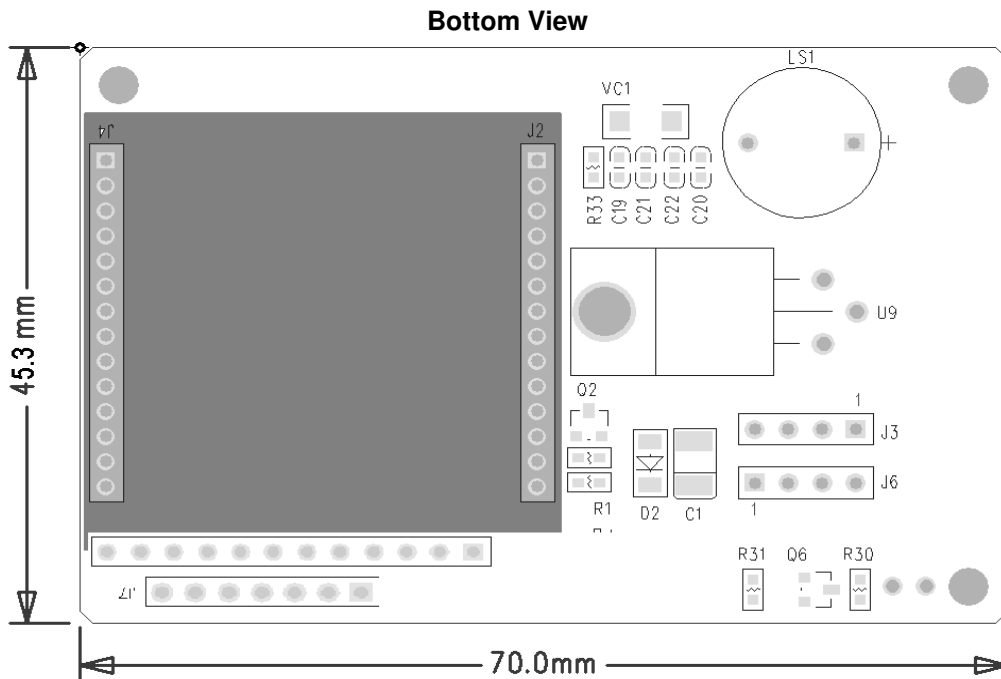
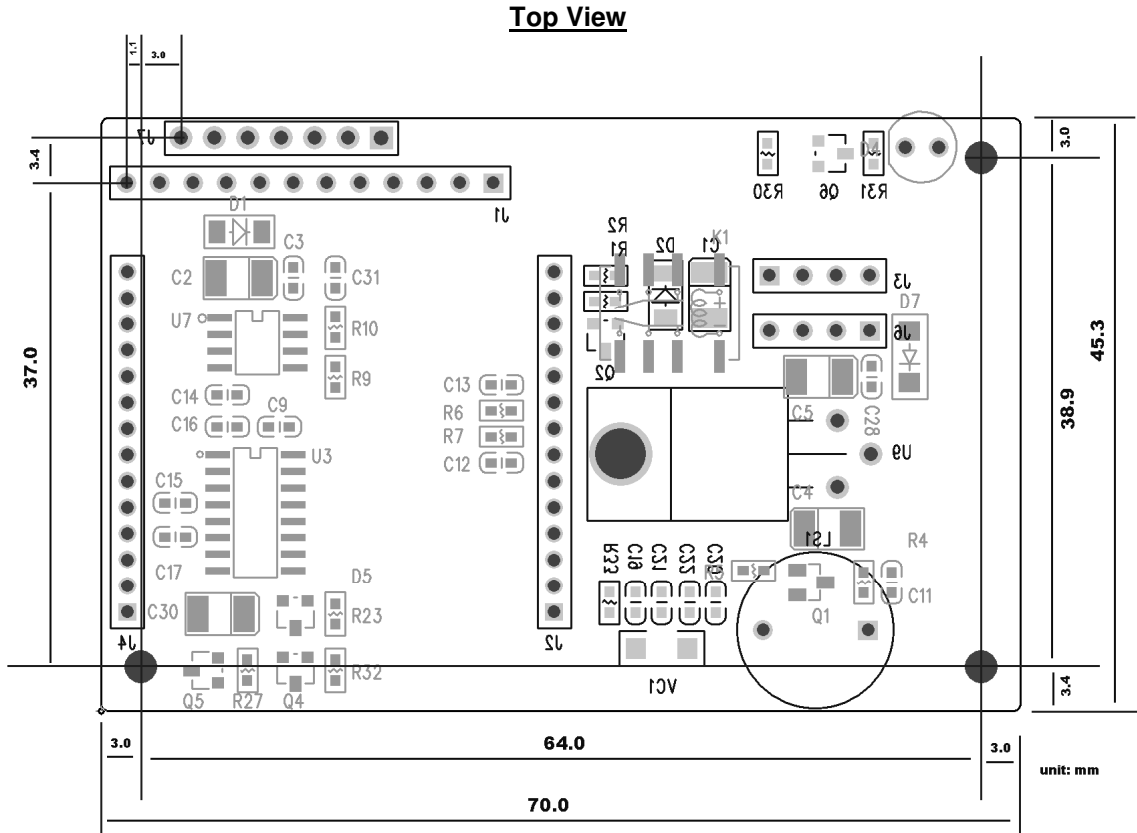
RoHS Compliant

#### Device Driver Operating System Support

Windows ® 98, ME, NT, 2000, Server 2003, XP, Vista, Server 2008, Server 2008 R2, 7  
 Linux

## 4.2. Configuration of ACR120S-SM reader module

### Board Diagram





**(A) PIN Assignment (for Serial Communication Interface – RS232)**

Pin (J1)	Signal	Description
1	-RESET	Pulling the signal to ground resets the module.
2	RS232Tx	RS232 Transmit
3	RS232Rx	RS232 Receive
4	RFU	Do not connect
5	RFU	Do not connect
6	SDA	I <sup>2</sup> C Data
7	SCL	I <sup>2</sup> C Clock
8	VCC	+5V supply to the module
9	RFU	Not connected
10	LED-/User Port	LED/User Port Output (Open Collector).
11	Reserved	Should connect to GND signal.
12	GND	Power and signal Ground.

Pin (J3)	Signal for Relay	Description
1	N.C.	Normal Close
2	N.O.	Normal Open
3	X	Not available
4	Com	Common

Pin (J7)	Signal	Description
1	X	Not available
2	VCC	+5V supply to the module
3	GND	Power and signal Ground.
4	RS232In	RS232 In
5	RS232Out	RS232 Out
6	X	Not available
7	X	Not available