



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR120 Contactless Reader/Writer



Technical Specifications



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1.0. Introduction



The ACR120 is a compact and cost-effective contactless reader and writer. It is developed based on the 13.56 MHz contactless smart card (RFID) technology, with proximity operating distance up to 5 cm, depending on the type of contactless tag in use (supports Mifare and ISO 14443 Type A and Type B cards).

The versatile reader is available in both USB and Serial interface version, which can easily be integrated into a PC environment as well as other systems. It is ideal for a broad range of applications, including public transport terminals, physical and logical access controls, and even vending machines.

The operation of ACR120 is extremely quick and convenient. All read/write operations can be done by waving the contactless card near the device. Moreover, its compact design enables the reader to be mounted and located anywhere with ease. ACR120 is also available in module form, giving you maximum development flexibility.



2.0. Features

- USB PnP or serial RS232 interface (Also available in RS485 *upon request*)
- 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 and B in the market
- Supports Mifare cards, including new Mifare Ultralight C, Mifare Plus and DESFire EV1
- Built-in anti-collision feature (only 1 tag is accessed at any time)
- Selective card polling capability (especially useful when multiple cards are presented)
- Operation LED
- Buzzer
- OEM PCBA module version (*Upon request*)



3.0. Typical Applications

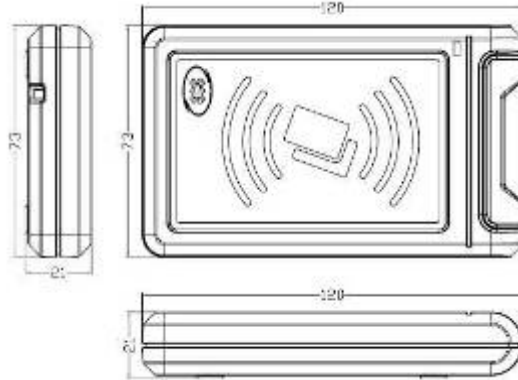


- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program



4.0. Technical Specifications

4.1. Configuration of ACR120 reader



Serial Interface

Type RS232 (Standard)
 Operation Baud Rate 9,600-115,200 bps
 Power Source From PS/2 mouse interface
 Supply Voltage Regulated 5 V DC (4.75 – 5.25V)
 Supply Current 200 mA

Universal Serial Bus Interface

Power source From USB
 Speed 1.5 Mbps (Low Speed)
 Supply Voltage Regulated 5 V DC
 Supply Current 200 mA

Contactless Smart Card Interface

Standard ISO 14443 A & B
 Protocol Mifare® Classic protocols, Mifare® DESFire protocols, Mifare Mini protocols
 Smart card read / write speed 106 kbps

Case

Dimensions 120 mm (L) x 73 mm (W) x 20 mm (H)
 Weight 155 g (with cable)
 Material ABS
 Color Metallic Silver Grey ■

Antenna

Antenna Size 55 mm x 85 mm
 Operating distance up to 50 mm

Operating Frequency

Operating Frequency 13.56 MHz

Operating Conditions

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

Cable Connector

Length 1.5 m (USB/ Serial RS232)

Certifications/Compliance

CE, FCC, RoHS Compliant, OFTA

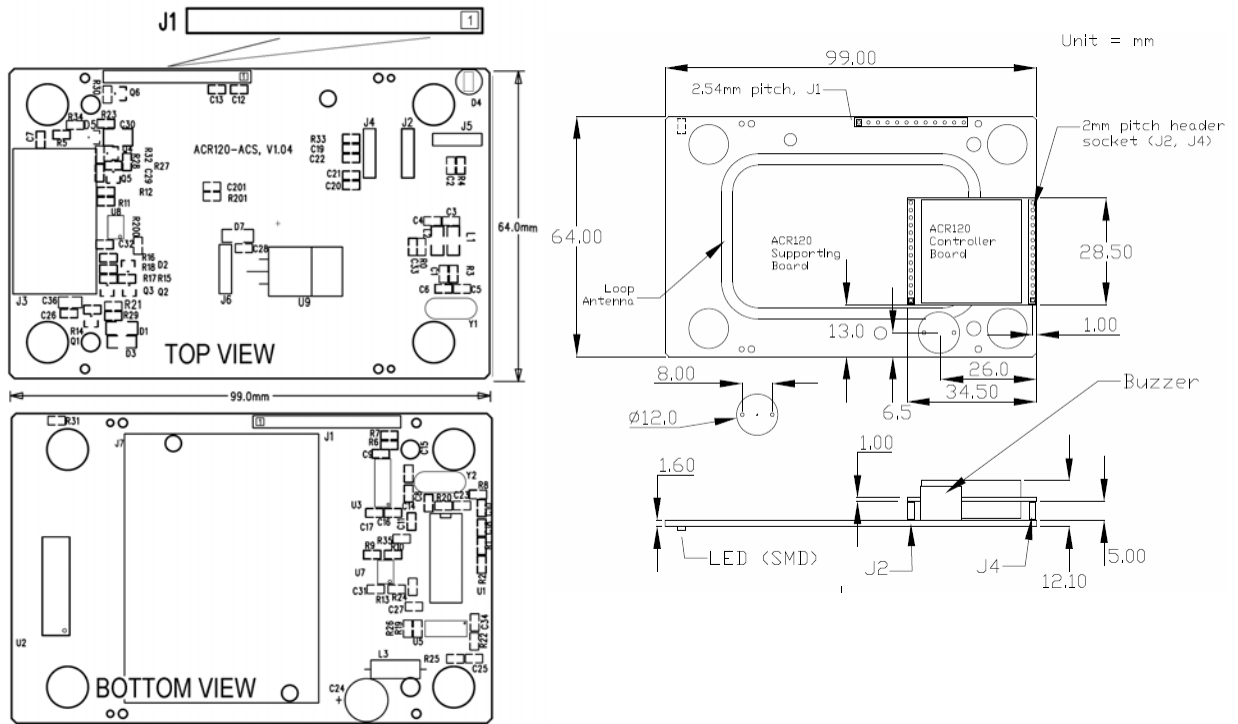
Device Driver Operating System Support

Windows © 98, ME, NT (Serial), 2000, Server 2003, XP, Vista, Server 2008, Server 2008 R2, 7
 Linux



4.2. Configuration of ACR120 reader module

Board Diagram



(A) PIN Assignment (for Serial Communication Interface)

| Pin | Signal | Description |
|-----|----------------|---|
| 1 | -RESET | Pulling the signal to ground resets the module. |
| 2 | RS232Tx/RS485+ | RS485+: (RS485 version) RS232 Transmit (RS232 version) |
| 3 | RS232Rx/RX485- | RS485-: (RS485 version) RS232 Receive (Rs232 version) |
| 4 | RFU | Do not connect |
| 5 | RFU | Do not connect |
| 6 | SDA | I ² C Data |
| 7 | SCL | I ² C Clock |
| 8 | VCC | +5 V 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. |



(B) PIN Assignment (for Serial Communication Interface – Alternate Connector)

| Pin | Signal | Description |
|-----|----------------|---|
| 1 | RFU | Not connected |
| 2 | VCC | +5 V supply to the module |
| 3 | GND | Power and signal Ground. |
| 4 | RS232Rx/RX485- | RS485-: (RS485 version) RS232 Receive (Rs232 version) |
| 5 | RS232Tx/RS485+ | RS485+: (RS485 version) RS232 Transmit (RS232 version) |
| 6 | RFU | Not connected |
| 7 | RFU | Not connected |

(C) PIN Assignment (for USB Interface)

| Pin | Signal | Description |
|-----|--------|---------------------------|
| 1 | X | Not available |
| 2 | USB- | USB-: available |
| 3 | USB+ | USB+: available |
| 4 | X | Not available |
| 5 | X | Not available |
| 6 | X | Not available |
| 7 | X | Not available |
| 8 | VCC | +5 V supply to the module |
| 9 | X | Not available |
| 10 | X | Not available |
| 11 | X | Not available |
| 12 | GND | Power and signal Ground |