Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38F Smart Floppy Smart Card Reader

Technical Specifications V6.06

info@acs.com.hk
www.acs.com.hk

Table of Contents

1.0. Introduction 3
1.1. Smart Card Reader 3
1.2. Ease of Integration 3
2.0. Features 4
3.0. Supported Card Types 5
3.1. MCU Cards 5
3.2. Memory-based Smart Cards 5
4.0. Typical Applications 6
5.0. Technical Specifications 7
6.0. Interface Scheme 9
6.1. Connection Scheme 9
6.2. Wiring Procedure 10

List of Figures

Figure 1 : ACR38F Connection Scheme 9

1.0. Introduction

ACR38F Smart Floppy is the ideal solution for easy integration of smart card readers into the desktop environment. It uses the same electronic circuit as the ACR38 and has the versatility and cost-efficiency characteristic of ACS smart card readers. Using the USB interface, it is propelled by the PC's internal power supply, and can be configured to go with the customer preferences.

1.1. Smart Card Reader

ACR38F Smart Floppy supports ISO 7816 Class A, B, and C smart cards. Also, it works with different memory cards and microprocessor cards with T=0 and T=1 protocol. It features a USB Full Speed interface and a smart cards R/W speed of 344 Kbps. This highly durable device can last for at least 100,000 card insertion cycles.

1.2. Ease of Integration

ACR38F Smart Floppy is easy to install, use, and integrate in a PC environment. It is PC/SC and CCID compliant, and its drivers are compatible with Windows®, Linux® and Mac operating systems. In addition, ACR38F Smart Floppy may now be used on mobile devices running the Android™ platform with versions 3.1 and above.

With its various features, ACR38F Smart Floppy can be used in different applications, such as e-Banking and e-Payment, e-Government, Loyalty, and Access Control applications.

2.0. Features

- USB 2.0 Full Speed Interface
- Plug and Play – CCID support brings utmost mobility
- Smart Card Reader:
  - Supports ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V) cards
  - Supports microprocessor cards with T=0 or T=1 protocol
  - Supports memory cards
  - Supports PPS (Protocol and Parameters Selection)
  - Features Short Circuit Protection
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Supports Android™ 3.1 and above
- Compliant with the following standards:
  - EN60950/IEC 60950
  - ISO 7816
  - CE
  - FCC
  - VCCI
  - PC/SC
  - CCID
  - EMV 2000 Level 1
  - Microsoft® WHQL
  - RoHS
  - REACH

3.0. Supported Card Types

3.1. MCU Cards

ACR38F Smart Floppy operates with any MCU card following either the T=0 or T=1 protocol.

3.2. Memory-based Smart Cards

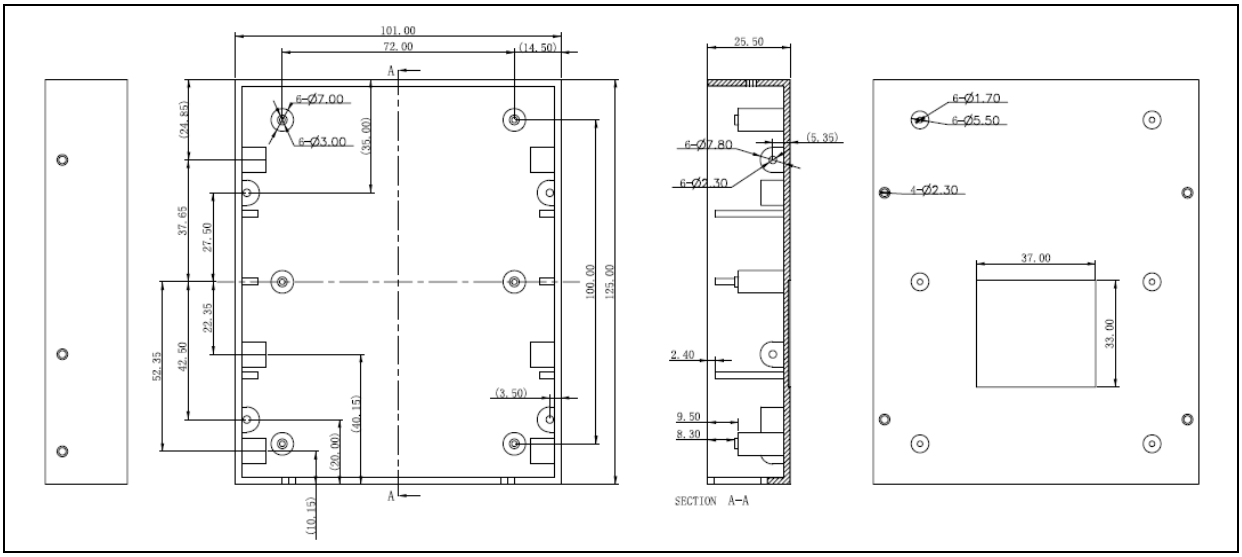
ACR38F Smart Floppy works with several memory-based smart cards such as:

- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
  - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
  - SGS-Thomson: ST14C02C, ST14C04C
  - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with secure memory IC with password and authentication, including:
  - Atmel®: AT88SC153 and AT88SC1608
- Cards with intelligent 1-kilobyte EEPROM with write-protect function, including:
  - Infineon®: SLE4418, SLE4428, SLE5518 and SLE5528
- Cards with intelligent 256-byte EEPROM with write-protect function, including:
  - Infineon®: SLE4432, SLE4442, SLE5532 and SLE5542
- Cards with '104' type EEPROM non-reloadable token counter cards, including:
  - Infineon®: SLE4406, SLE4436, SLE5536 and SLE6636
- Cards with Intelligent 416-bit EEPROM with internal PIN check, including:
  - Infineon®: SLE4404
- Cards with Security Logic with Application Zone(s), including:
  - Atmel®: AT88SC101, AT88SC102 and AT88SC1003

4.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Public Key Infrastructure
- Network Security
- Access Control
- Loyalty Program

5.0. Technical Specifications



Universal Serial Bus Interface	
Type	USB Full Speed, four lines: +5 V, GND, D+ and D-
Power Source	From USB
Speed	12 Mbps
Smart Card Interface	
Standard	ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V), T=0 and T=1
Supply Current	Max. 50 mA
Smart Card Read/Write Speed	Max. 344,086 BPS
Short Circuit Protection	+5 V/GND on all pins
CLK Frequency	4 MHz
Card Connector	Contact
Card Insertion Cycles	Min. 100,000
Physical Specifications	
Dimensions	125.0 mm (L) x 101.5 mm (W) x 25.5 mm (H)
Color	Black
Weight	140 g
Built-in Peripheral	
LED	1 LED, Green
Operating Conditions	
Temperature	0 °C – 50 °C
Humidity	10% – 90%
MTBF	500,000 hrs
Certifications/Compliance	
EN60950/IEC 60950, ISO 7816, CE, FCC, VCCI, PC/SC, CCID, EMV 2000 Level 1, RoHS, USB Full Speed Microsoft® WHQL Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2	

Device Driver Operating System Support

Windows® CE, Windows® 98, Windows® ME, Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2003 R2, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2
Linux®, Mac OS®, Android™ 3.1 and above

6.0. Interface Scheme

ACR38F Smart Floppy is designed to be mounted or integrated into a standard PC chassis; therefore the top plastic cover is not required. The power of the reader is obtained through the internal switching power supply of the PC. Basically, the functionality of the ACR38F Smart Floppy is the same as an ACR38 reader.

The size is the same as a standard 3.5-inch floppy disk drive and there is no plastic cover on top. There are also screw holes on the reader for the user to mount the device to the PC chassis. For convenience, four (4) pieces of PA 2.6 mm x 8 mm screws are included. A “4-pin mini power socket (M)” is provided on the PCB reader for the power interface (the socket is the same as the one used in a 3.5-inch floppy disk drive). A 2 x 5 pin header socket is provided on the PCB of the reader for connecting to the communication port through the use of an appropriate extension cable.

6.1. Connection Scheme

To connect ACR38F Smart Floppy to a standard PC chassis, an extension cable is required. A cable with a “USB Plug A” on one side while the other side is connected to a “USB Plug B” as shown below:

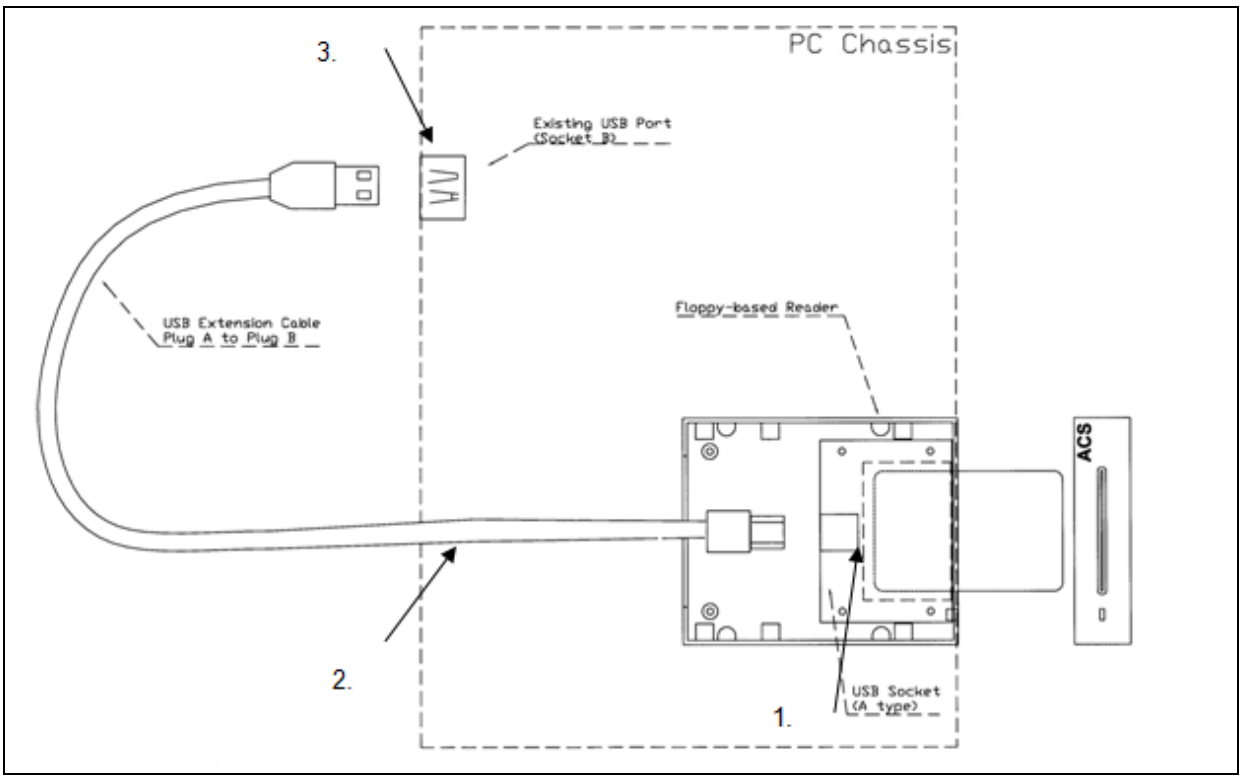


Figure 1: ACR38F Connection Scheme

6.2. Wiring Procedure

To connect the ACR38F Smart Floppy to your computer:

1. Connect the USB Plug A of the flat cable to the USB Socket A on the PCB of the reader.
2. The USB Plug B should go through the slot hole of the PC chassis.
3. Connect the USB Plug B of the extension cable to an available USB port.