

WACR38

USB Smart card reader/ writer

1.0 Introduction

Due to the rising demand of e-working methods (remote office, home office...) and the increasing risk of unauthorized access to private network, it is time to properly secure access to PCs, desktops, and the Intranet and Extranet networks. WACR38 offers solutions based on smart card readers (connected to PCs) for access control.

The WACR38 smart card reader/writer is a **USB full speed** device, which is the interface for the communication between a computer and a smart card. It is designed for the PC environment, and is the ultimate smart card peripheral for a PC.

WACR38 is a key partner of the PC, as smart card is becoming an essential component in network security and electronic payment system. Providing secured network computing environment by its data encryption function, the SDK package allows users to easily develop their own application to best meet the specific system needs.



WACR38 is a low cost, yet reliable and effective smart card-to-PC interface with design focusing on convenient use and harmony with other PC peripherals in shape and color. It also provides the solution where the security of a smart card is required. It can be used as access control to a computer or network (intranet, extranet, etc), authentication for e-commerce (B to B, B to C), etc. It is also very simple to use and install. It is ideal for electronic commerce, home banking or e-purse facilities, secure computer access or any of a multitude of other applications.

2.0 About RoHS Compliance

The RoHS (**R**estriction **o**f **H**azardous **S**ubstance) Directive restricts the use of six hazardous materials in the manufacturing of various types of EEE (Electrical and Electronic Equipment), including:

- Lead,
- Mercury,
- Cadmium,
- Hexavalent chromium,
- Polybrominated biphenyl (PBB) and
- Polybrominated diphenyl ether (PBDE).

So RoHS compliance means the protection to the environment and your future generations from these restricted irritants, carcinogens and toxins.

3.0 Features

- **USB full speed** interface to PC with simple command structure
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Support SLE 4418/28/32/42 memory cards
- Support most common memory-based smart cards, including **I2C bus protocol cards** (from 1k bits up to
- 1024k bits) and secure memory cards (**Atmel AT88SC153** and **AT88SC1608**)

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- Short Circuit Protection
- RoHS Compliant
- Conform with: EN 60950/IEC 60950, ISO-7816, PC/SC, CE, FCC, Microsoft WHQL, EMV 2000 Level 1
- Support ISO-7816 Class A, B and C (**5V, 3V, 1.8V**) cards
- Extra SAM slot is optional
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards

4.0 Supported Card Types

4.1 MCU Cards

The WACR38 can operate MCU card with T=0 and T=1 protocol. The table presented in Appendix A (Reference Manual) explains which card type selection value must be specified for the various card types supported by the reader.

4.2 Memory-based smart cards (synchronous interface)

- Cards following the I2C bus protocol (free memory cards) such as:
Atmel: AT24C01 / 02 / 04 / 08 / 16 / 32 / 64 / 128 / 256 / 512 / 1024
SGS-Thomson: ST14C02C, ST14C04C
Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- SLE4432/4442 intelligent 256 bytes EEPROM with write protect function:
SLE4432, SLE4442
- SLE4418/4428 intelligent 1K bytes EEPROM with write-protect function:
SLE4418, SLE4428
- Secure memory cards such as:
AT88SC153, AT88SC1608
- SLE4406/4436/5536 '104' type EEPROM non-reloadable token counter cards:
SLE4406, SLE4436, SLE5536

5.0 Typical Applications

- Home Banking and Home Shopping
- Electronic Commerce
- Checking the balance of account of re-loading an electronic purses
- Network access control
- S/W locking
- Digital signature
- Loyalty and promotions
- Stored value
- Identification
- Ticketing
- Parking and toll collection
- Online gaming

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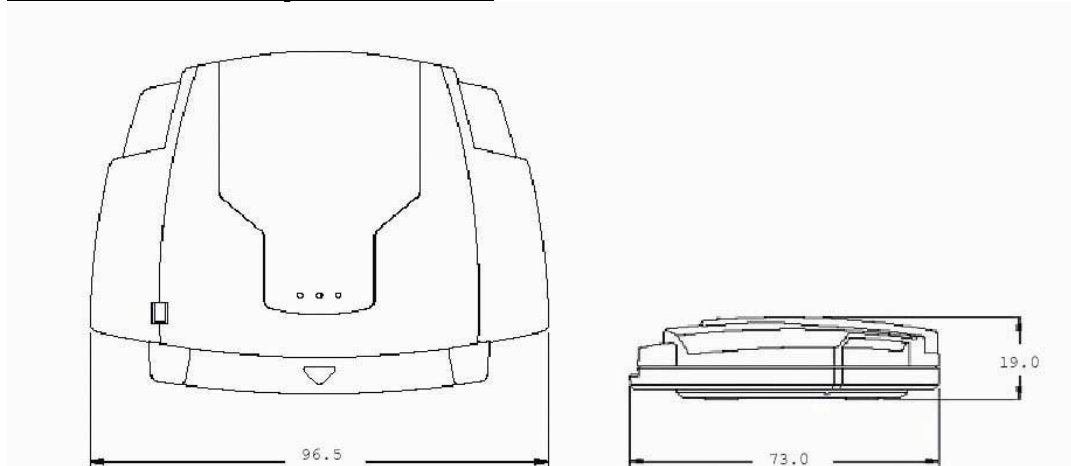
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6.0 Technical Specification



Universal Serial Bus Interface

Type..... USB full speed, four lines: +5V, GND, D+ and D-
Power source..... From USB
Speed12 Mbps

Smart Card Interface

Standard..... ISO-7816 Class A, B and C (5V, 3V, 1.8V), T=0 and T=1
Supply current.....max. 50mA
Smart card read / write speed1,743 – 250,000 bps
Short circuit protection+5V / GND on all pins
The presence of the smart card power supply voltage is indicated through a green LED on the reader
CLK frequency4 MHz
Card connectorContact
Card insertion cycles.....min. 100,000

(Optional) SAM Card Interface

Card connectorSliding
Location.....Under the removable dark lid

Physical Specifications

Dimensions.....73.0mm (L) x 96.5mm (W) x 19.0mm (H)
ColorSilver
Weight95g (\pm 5g allowance for cable) - Spaceship casing
Cable length, cord, connector1.5 meters, Fixed (non-detachable), USB A

Operating Conditions

Temperature0 - 50° C
Humidity.....40% - 80%

Standard/Certifications

EN 60950/IEC 60950, RoHS Compliant, EMV 2000 Level 1, ISO-7816, PC/SC, CE, FCC, USB Full Speed, Microsoft WHQL 2K, XP

OS

Windows 98, ME, 2K, XP, NT 4.0, 2K3 Server, Linux, MAC OS X

OEM

OEM-Logo possible, customer-specific colors, casing and card connector

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