HCR900
Motorized Hybrid Card Reader

Thank you for purchasing the HCR900 series products.
The HCR900 Motorized Hybrid Card Reader series is ideal for banking, vending, kiosk and other card reader related industries. The HCR900 are designed to offer the user a hybrid card reading solution that will meet many applications. Through the special designed gate, it can resist the vandalism operating to secure the instrument.

FEATURES

- Motorized card insertion/ejection mechanism
- Vandal resistant designed gate to prevent alien articles.
- IC Card reader read/write ISO7816/CPU/Memory cards
- Compact size: $162^{L}*83^{W}*55^{H}$ (mm)
- Dual color LED indicator to indicate the operating status
- Support all types of magnetic card, including credit card and driver's license.
- Firmware upgradeable
- Auto-eject for power failure
- Expandable four SAM module

AGENCY APPROVED

- FCC Class A
- CE Class A
- BSMI (Bureau of Standards, Metrology and Inspection, Taiwan)

FEDERAL COMMUNICATIONS COMMISSION
(CLASS A of FCC NOTE)
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

BSMI 甲類 Class A 警語

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Certification

- EMV2000 Level 1

WARRANTY

This product is served under one-year warranty to the original purchaser. Within the warranty period, merchandise found to be defective would be repaired or replaced. This warranty applies to the products only under the normal use of the original purchaser, and in no circumstances covers incidental or consequential damages through consumers' misuse or modification of the products.

INSTALLATION

1. Connect the DB9 connector of the interface cable to a serial port of the computer.
2. Plug power cord into the DB9 connector of the interface cable.
3. Plug in the power adapter to proper AC outlet. See instruction on adapter for the proper voltage.

SPECIFICATIONS

Item	Description			Remark
Hardware				
Magnetic Card Reader	Bi-directional, support single, dual, triple tracks Full-insertion ISO7811			Reads ISO standard card, CA old DMV, AAMVA; Reads Low and High coercivity (300 ~ 4000 oe); Accept cards thickness 0.76mm +/- 0.08mm
Speed	Standard	16 IPS ± 15%		
	Jitter ±15%	16 IPS ± 15%		
	Amp. 60%	16 IPS ± 15%		
IC Card Reader	Memory Card	Synchronous Type		S9 (SLE 4418/4428) S10 (SLE 4432/4442) I^2C (Standard & Extended) 104 Type (SLE 4406/4436/5536) SLE 4404, MS416
	CPU Card	Standard	ISO 7816 / EMV	
		Voltage	5V / 3V	
		Protocol	T= 0, T= 1	
	EMV	EMV2000 Level 1 Certificated		
	SAM Module	Built-in, Single		On board
	4 SAM board	Optional		
	Baud Rate	38,400 Max.		
Peripheral Port	Standard RS232, baud rate 1,200 – 115,200			Default: 9600 (Internal: Crystal: 22.1184 MHz)
ESD	Contact mode: ±4KV Air mode: ±8KV			
Mechanical				
Magnetic Head Life	2M			
Body Material	ABS UL 94V-0; Aluminum Alloy			
Foreign Objects Protection	Implemented by Bezel, Gate			half-card & non-ISO card insert, coin, narrow card protection
IC Card Contact Type	Landing			
Mounting Orientation	Up			
Physical				
Dimension	$162^{L}x83^{W}x55^{H}$ (mm)			(no 4 SAM card)
Weight	350g			(without Adapter and 4 SAM card)
Environment				
Operating Temperature	-10 - 50℃			
Storage Temperature	-30 - 70℃			
Operating Humidity	10 - 90% (non condensing)			
Storage Humidity	10 - 90% (non condensing)			
Electrical Specifications				
Power Required	12Vdc, 1A			
Power Consumption	100 mA			Idle
	500 mA			Motor on
	1 A			Motor startup
Communication	Standard RS232 (DB9 connector)			
Ripple	250 m Vp-p max.			
Dielectric Strength	250VDC for 1 minute			
Insulation Resistance	10M Ohms min. at 250VDC			
Optional Items				
TTL Level RS232 communication for magnetic stripe				
Customize Bezel				
USB communication cable				
4-SAM daughter board				
Automatic card ejection module when abnormal power down				

FRAME STRUCTURE

Data is exchanged between the host controller and HCR900 in blocks, each made up of binary characters on one byte:

- 4 header characters
- 0 to 261 data characters (C-APDU or R-APDU)
- 1 LRC character

4 bytes	0 to 261 bytes	1 byte
Header	C-APDU or R-APDU	LRC
	Information field	

- Header bytes

The 4 header bytes includes

1st byte								2nd byte	3rd byte	4th byte
A	1	1	0	0	0	0	0	Length-H	Length-L	Command Byte
▼								Data length to transmit (Excluding header and LRC)		

A=0 → Acknowledge of the frame (1st byte = 60)
A=1 → Nack of the frame (message with a status error, 1st byte = E0)

- LRC byte

The LRC (Longitudinal Redundancy Check) byte is such that the Exclusive-OR of all bytes including LRC is null.