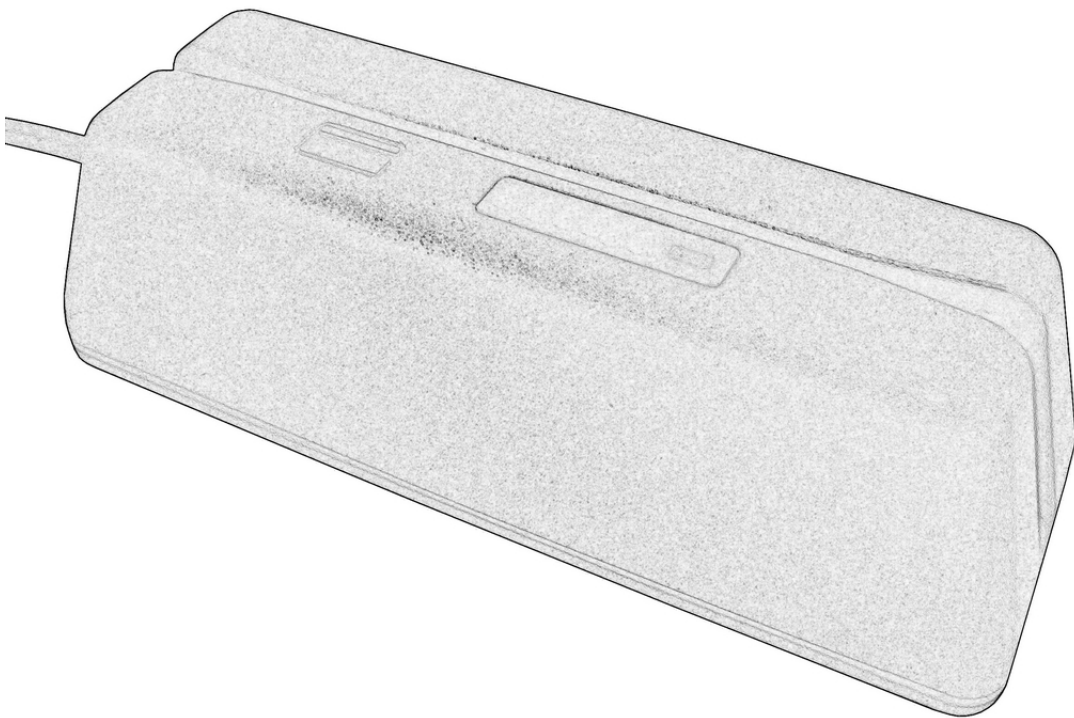# Magnetic Stripe Reader
SERIES 1288

Operation Manual

Version 1.0

Table of Contents:

CHAPTER 1   *Introduction*

This product is an advanced bi-directional, programmable magnetic stripe reader.Supports ISO   standard(7810,7811,7812,7813) format card.It is designed for use with credit authorization terminals, point-of-sale terminals,portable terminals, personal computers and banking terminals.

Model MSR K is designed to be used with IBM AT compatible computer, entering data. As if it were being generated though the Keyboard, no software modification, nor Programming of input/output devices, nor Addition power supply is needed.Model MSR R operates as an on-line card reader which communicates with any computer via an RS232 interface.

The MSR R requires +5v DC from either an external power supply or internal power of your computer or terminal. Model MSR U with USB 1.1 Interface ,Communicates with any computer via USB ports . With the special Windows driver,it can emulate a Visual COM in the Windows and Application can access via this com port to communicate with MSR U .
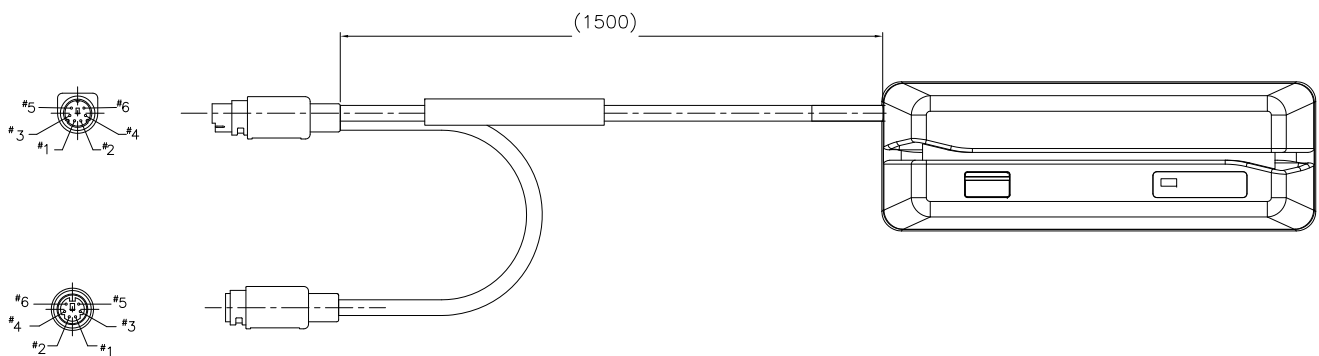
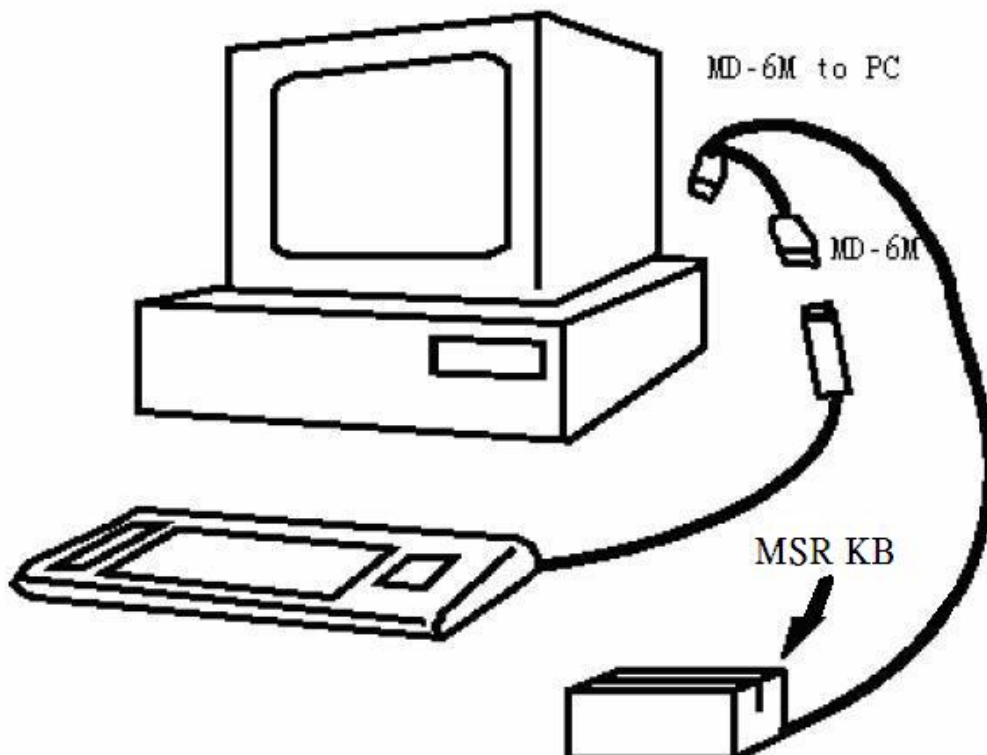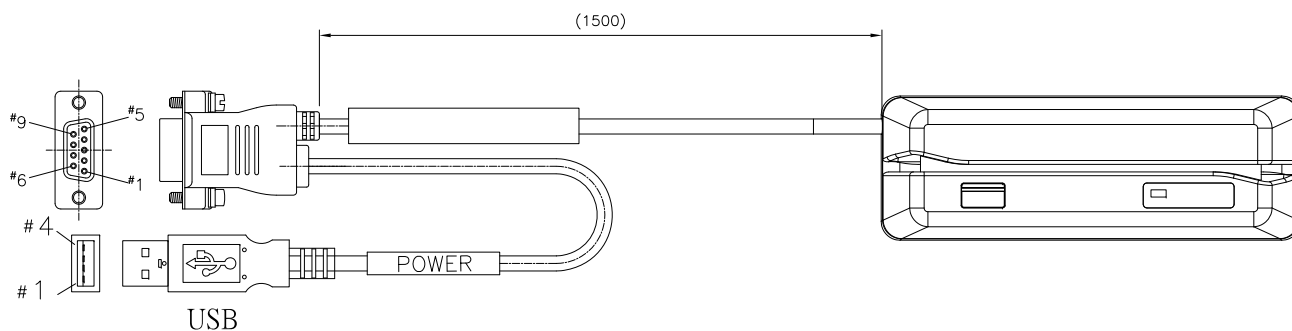| CHAPTER 2	*Appearance*

3

| CHAPTER 3 | *Installation* |

MSR KB series:

The MD-6M side of KB cable, shall be connected to PC PS/2 Keyboard port.

The MD-6F side of KB cable can be connected to normal PC keyboard, PC keyboard can work with the product together.

MSR RS232 series:

The DB-9F side of RS232 cable connects to PC COM port (COM 1 or COM 2 or other COMs) , and power connects to USB .
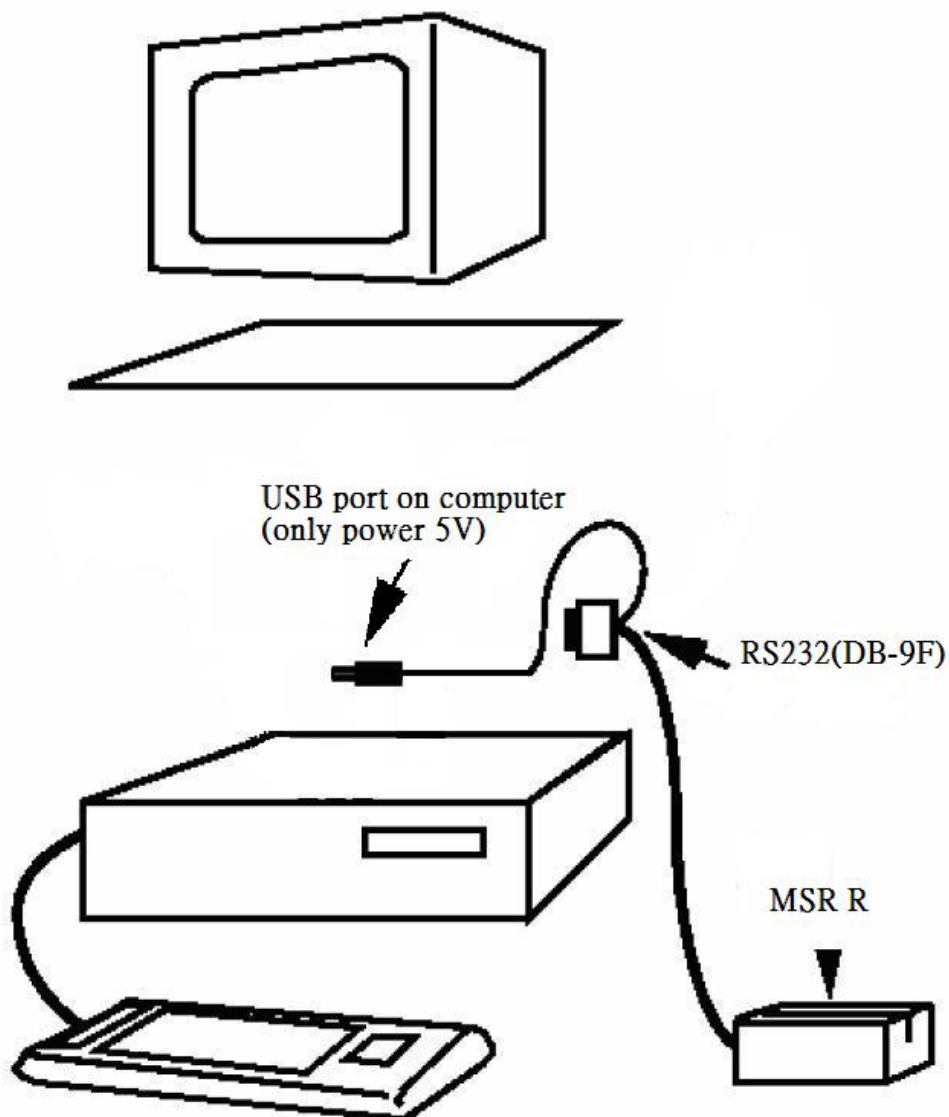
MSR USB installation

Step 1: Connect to the computer

Plug the USB-connector into the USB port of your computer.

Refer to Figure 2-1.

MSR U **Magnetic Stripe Reader Installation**
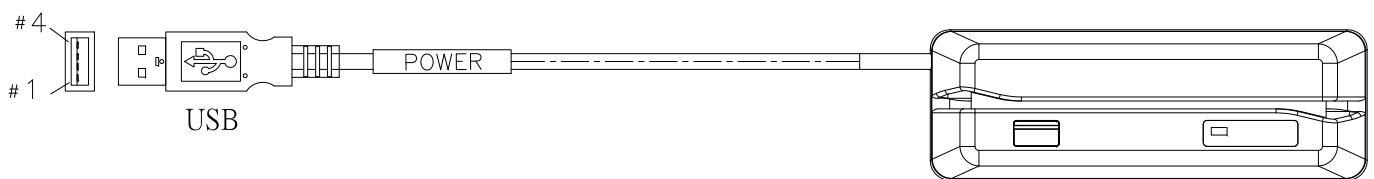
Figure 2-1

MSR USB will have "Beep" sound to indicate that it is ready for operation.

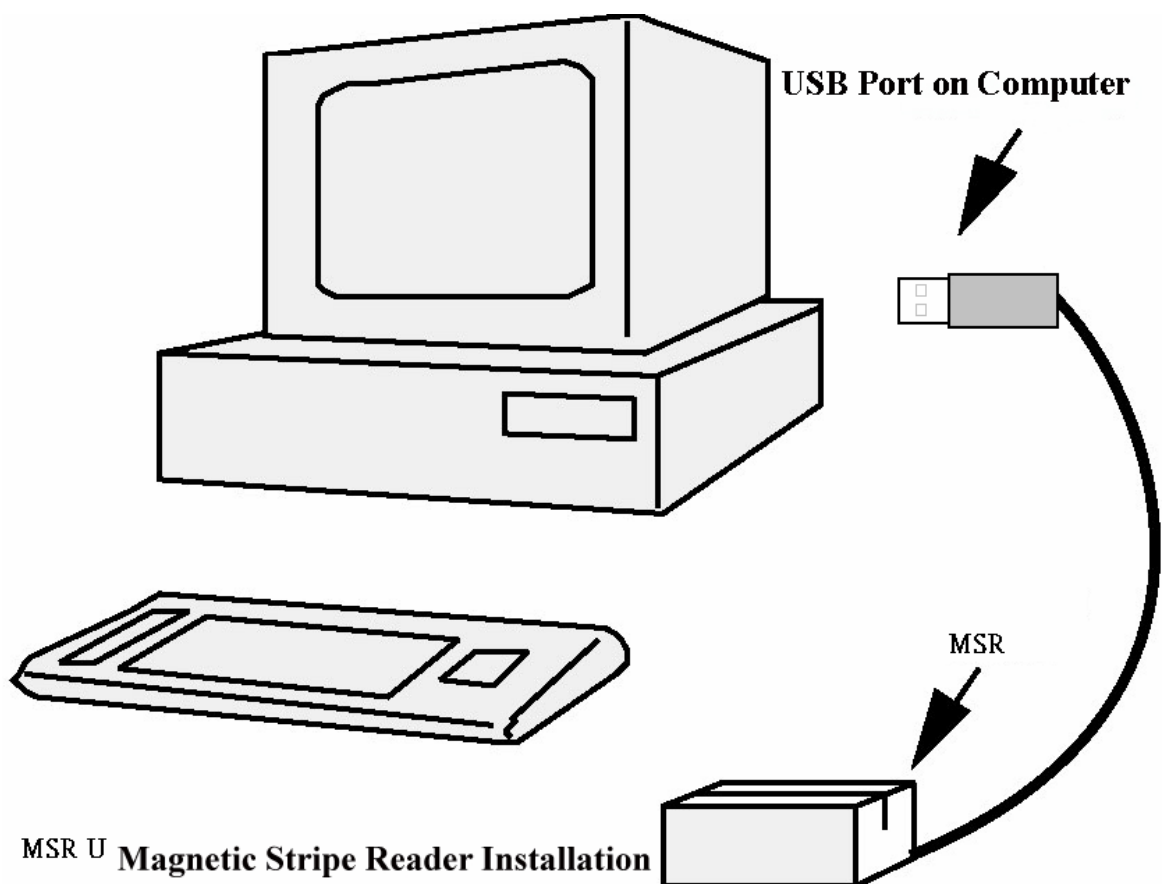**Step 2: Driver installation**

v2.0.0.19 for Win98SE/ME
v2.0.2.1 for Win2K/XP/2003/Vista(32bit)
PL-2303 (H, HX, X chip version) Mac OS 8 & 9 driver v1.3.6 build 1, Prolific Edition
PL-2303 (Chip H/HX/X) Linux driver for RedHat 7.3/8.0/9.0 Only

MSR USB simulates RS232 and Keyboard interface by USB with COM port selected. Following sections are MSR USB driver, utilities installation.

MSR USB Driver:

a. Download MSR USB Driver from CD, and extract them to your hard disk.

b. When you plug-in the USB device, WINDOWS operating system will detect the new Hardware automatically.

c. Follow indicated steps to install the driver and finish the installation.

Install for WindowsXP

1. Insert CD-Rom and select "MSR USB Driver" folder.
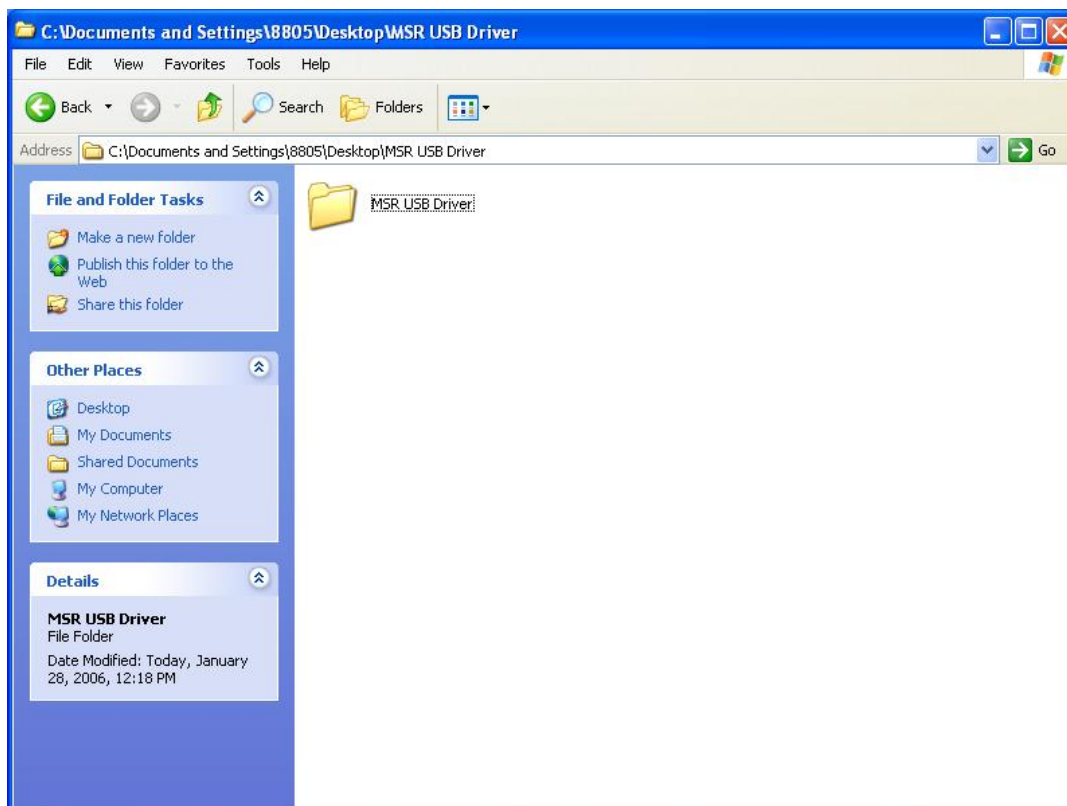
2. Then select "USB for Win SERIES" folder.

3. Select "PL-2303 Driver Install.exe".
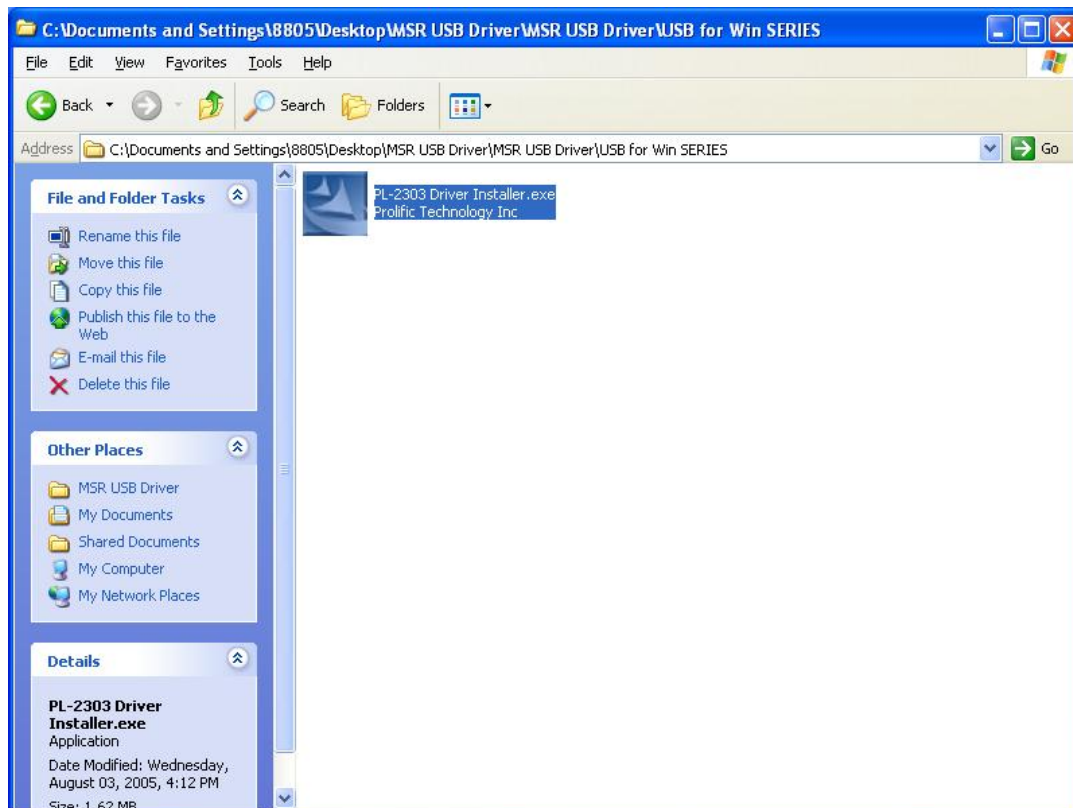
4.When the setup screen appears then to select "Next" step.
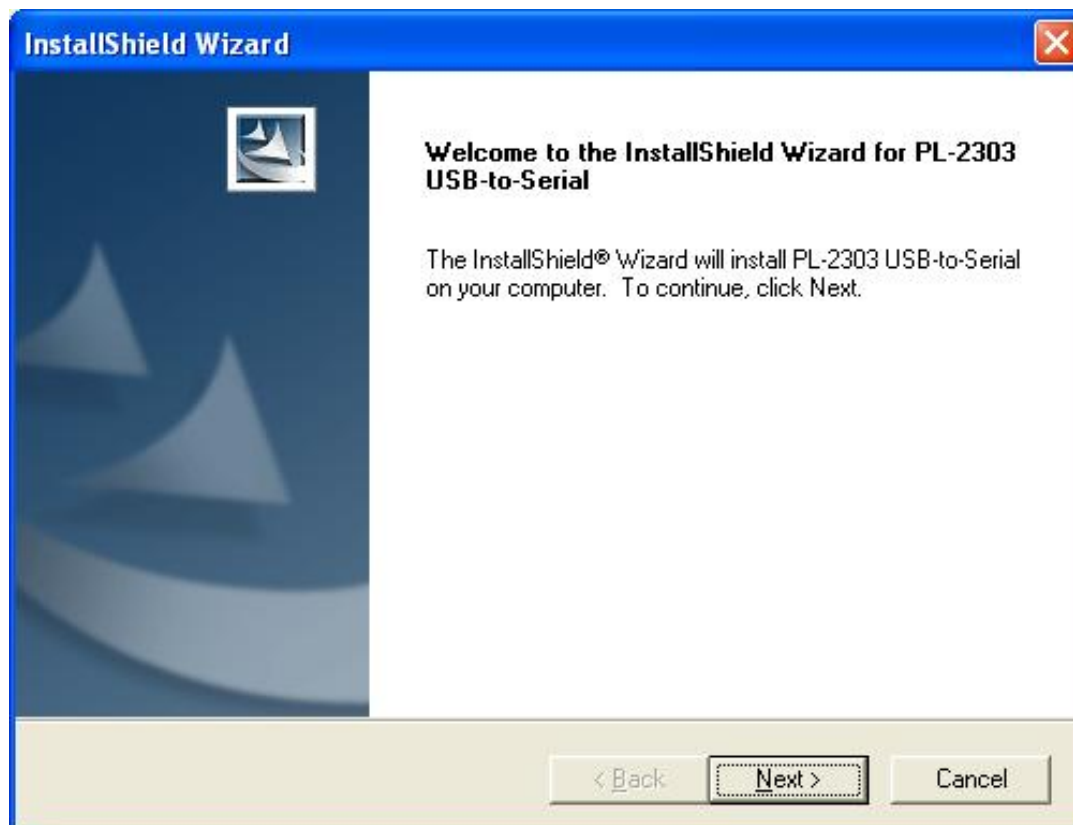
5. After the installation completes, please select " Finish" and restart the computer.
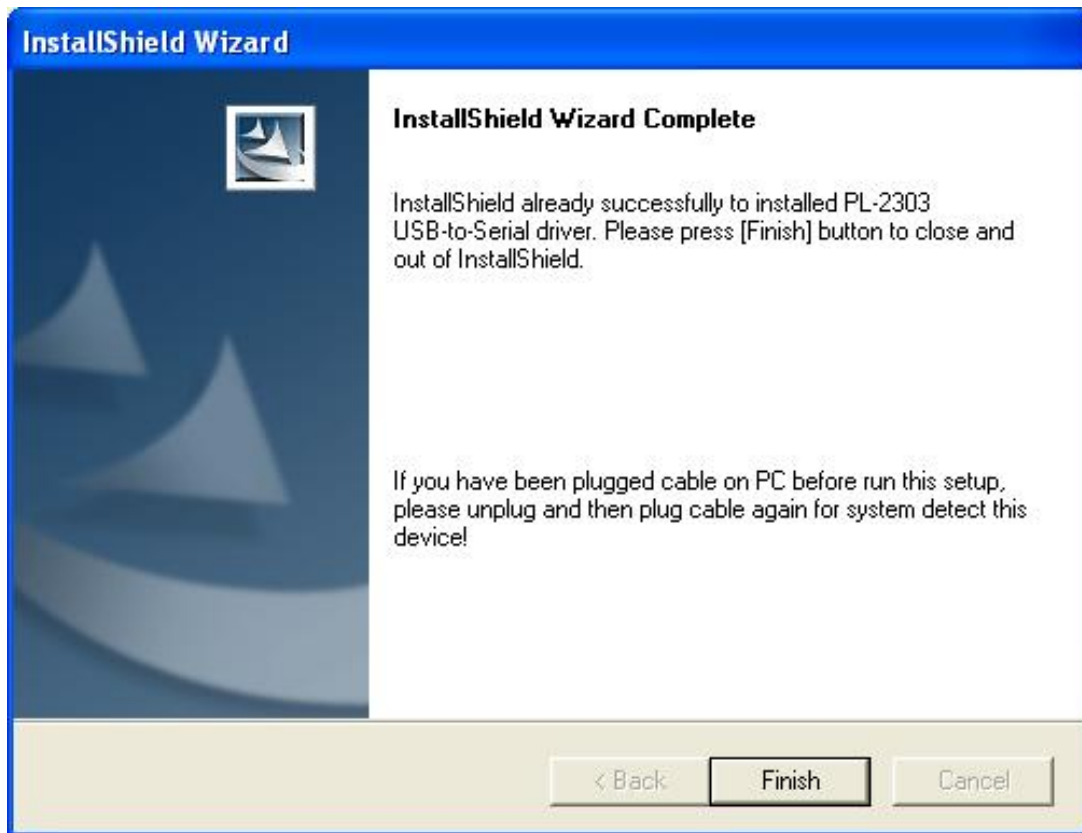
1288 USB Driver for Windows

Specification.:

1. Support Microsoft Windows 95,98,ME,NT,2000,XP
2. Support Visual COM port.
3. Plug and Play.

How to Install:

1.When you plug-in 1288 USB, Windows operating system will detect
new hardware.

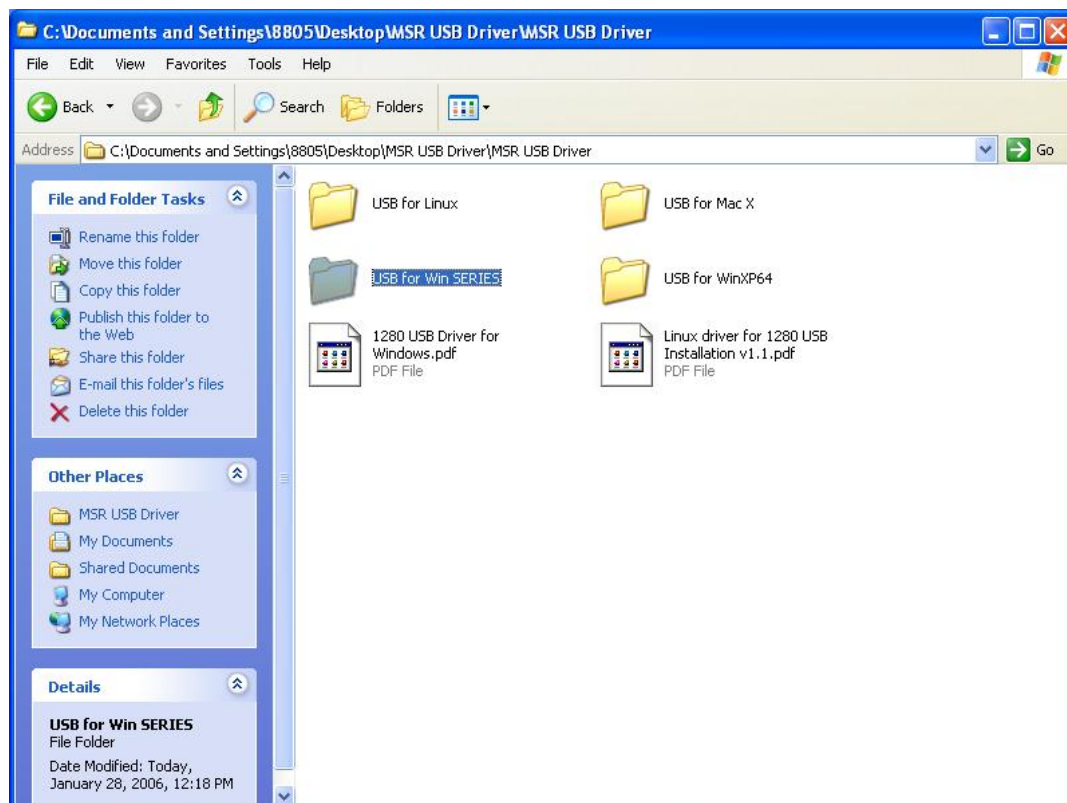a. Follow indicated steps to install the drivers (Please select the driver in the
   disk) and finish the installation.

How to Test Visual COM:

1. After you installed 1288USB driver, then hardware will assign an USB
   simulated COM for 1288USB. So, you have to check the USB
   assigned COM port from "Device Manager" of windows operating
   system before you starting to get data from 1288USB .
2. Use COM test software to open simulated com port .
   Setting COM port as 9600-N-8-1.
3. Striping the magnetic card, tracks data will be shown on the screen.

Install for Linux
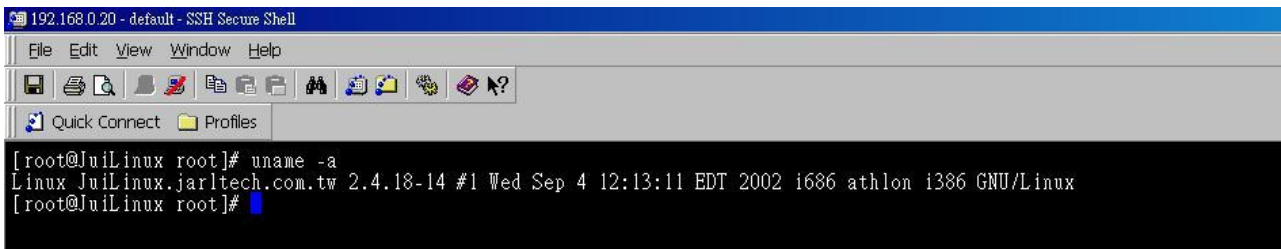
1288 USB Linux Driver:

Linux Driver Support for RedHat 7.3 / 8.0 / 9.0 Only

1. At present, the determination uses the core edition(below blue typeface
    is under the linux instuction).

[root@JuiLinux root]# uname -a
Linux JuiLinux.jarltech.com.tw 2.4.18-14 #1 Wed Sep 4 12:13:11 EDT 2002 i686 athlon i386 GNU/Linux

2. After the product installation, it determines the driver has written down correctly

    (joins PC USB port to able to hear "Beep").

[root@JuiLinux root]# lsmod | grep pl
pl2303   14424   0
usbserial   22108   0   [pl2303]
usbcore   77056   1   [pl2303 usbserial hid usb-ohci]
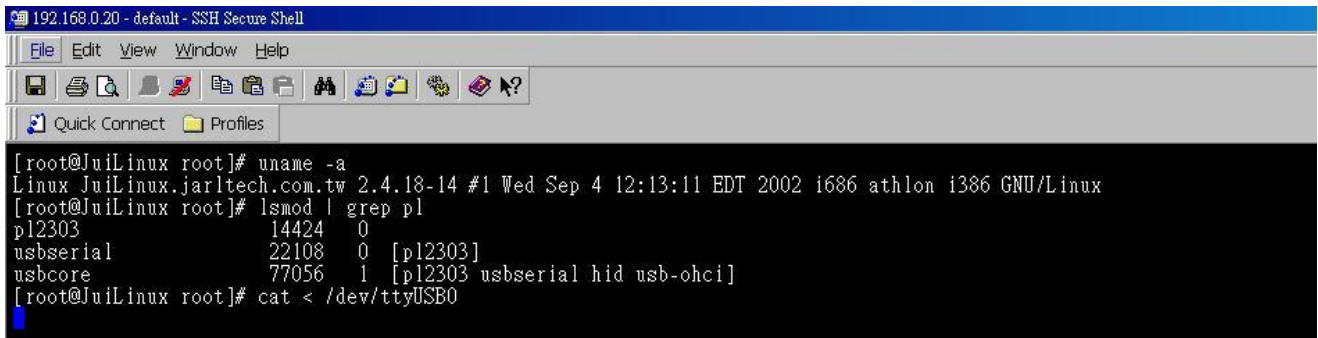
3. Obtain the data from USB0.
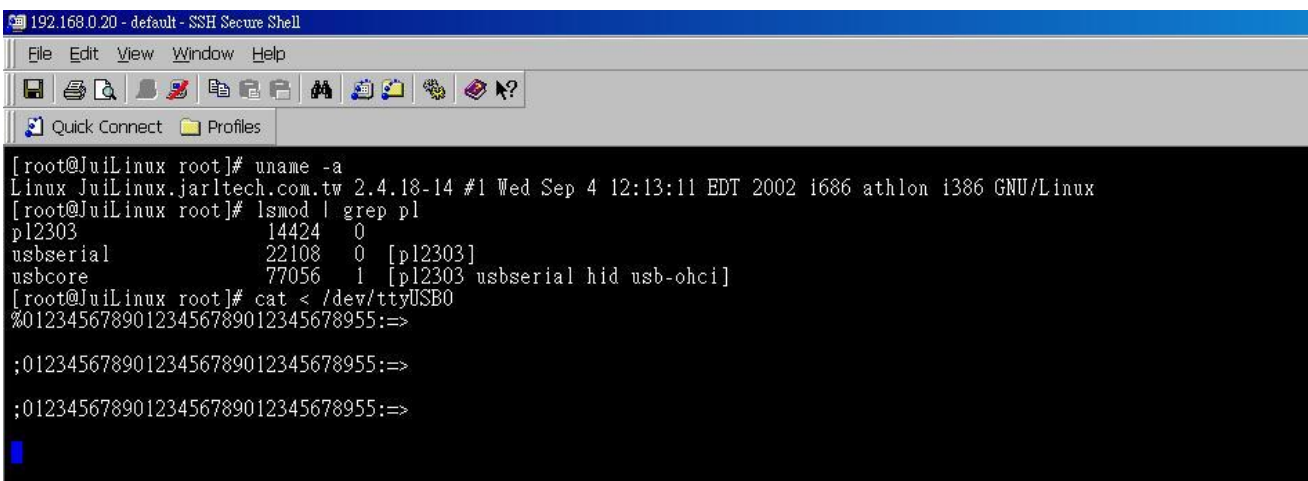
[root@JuiLinux root]# cat < /dev/ttyUSB0

```
192.168.0.20 - default - SSH Secure Shell
File  Edit  View  Window  Help

  Quick Connect    Profiles
[root@JuiLinux root]# uname -a
Linux JuiLinux.jarltech.com.tw 2.4.18-14 #1 Wed Sep 4 12:13:11 EDT 2002 i686 athlon i386 GNU/Linux
[root@JuiLinux root]# lsmod | grep pl
pl2303                14424   0
usbserial             22108   0  [pl2303]
usbcore               77056   1  [pl2303 usbserial hid usb-ohci]
[root@JuiLinux root]# cat < /dev/ttyUSB0
```

4. After the card has brushed the material which delivers.

```
192.168.0.20 - default - SSH Secure Shell
File  Edit  View  Window  Help

  Quick Connect    Profiles
[root@JuiLinux root]# uname -a
Linux JuiLinux.jarltech.com.tw 2.4.18-14 #1 Wed Sep 4 12:13:11 EDT 2002 i686 athlon i386 GNU/Linux
[root@JuiLinux root]# lsmod | grep pl
pl2303                14424   0
usbserial             22108   0  [pl2303]
usbcore               77056   1  [pl2303 usbserial hid usb-ohci]
[root@JuiLinux root]# cat < /dev/ttyUSB0
%012345678901234567890123456789012345678955:=>

;012345678901234567890123456789012345678955:=>

;012345678901234567890123456789012345678955:=>
```
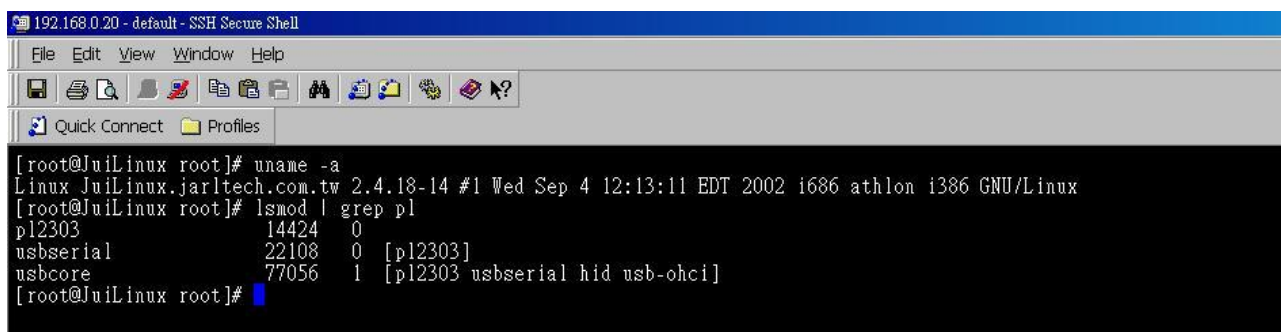
12

1288 USB / Device and Driver block chart v1.0

```
                                          ┌─────────────────────────────────────────────────┐
                                          │ 1288 MSR                                         │
┌──────────────────────────────┐         │  ┌────────────────────┐    ┌────────────────────┐│
│ Software:                    │         │  │ Micro controller   │◄───│ Magnetic Head      ││
│ Open Visual COM port to read │         │  │ With Decoder       │    │ And data buffer    ││
│ data From 1288               │         │  │ (UART Interface)   │    │ board              ││
│ Or direct control 1288 by    │         │  └────────────────────┘    └────────────────────┘│
│ sending Command codes.       │         │           ▲                                      │
└──────────────────────────────┘         │           ▼                                      │
            ▲                             │  ┌────────────────────┐                          │
            │                             │  │ Prolific PL2303    │                          │
            ▼                             │  │ USB to UART        │                          │
┌──────────────────────────────┐         │  └────────────────────┘                          │
│ Prolific USB Driver for OS:  │         │           ▲                                      │
│ Install to Creates a Visual  │         └───────────┼──────────────────────────────────────┘
│ COM for application.         │                     ▼
│ Read/write.                  │◄────────►  ┌────────────────────┐
└──────────────────────────────┘            │   PC USB port      │
                                            └────────────────────┘
```
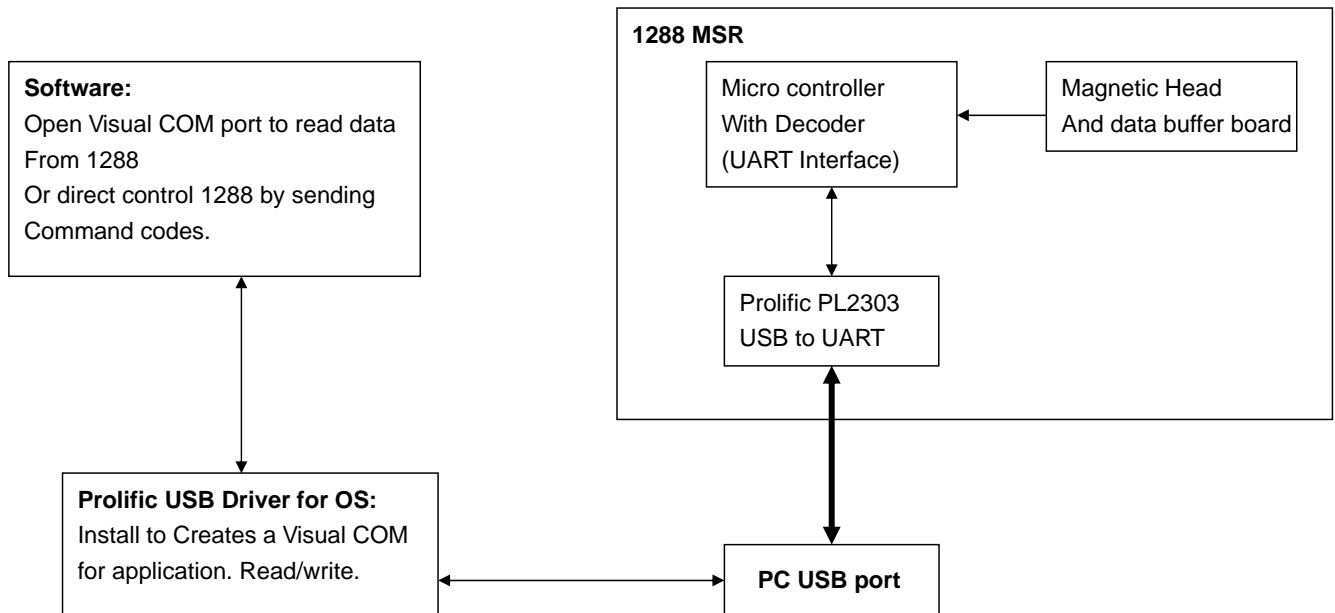
1288 Handshake with visual COM

1. 1288 uses RTS / CTS handshake check with USB-RS232 chip.
2. When PC software needs to send data to 1288, check CTS of PC side in advance.,
   If no action, it means 1288U is busy, PC software stop sending data, wait for CTS ready then start sending.
3. When 1288 needs to send data to PC, check CTS of 1288side in advance.
   If not active, means PC is busy, 1288 stop sending data, wait for CTS ready then start sending.

```
                      RTS              CTS
        ┌──────────┐──────────────────────────►┌──────────────┐
        │          │                           │ USB-RS232    │
        │   1288   │       CTS        RTS       │ Chip         │
        │          │◄──────────────────────────│              │
        └──────────┘                           └──────────────┘
```
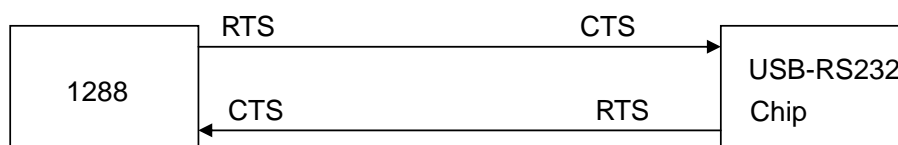
| CHAPTER 4 | *Custom Programming Tool* |

The MSR series doesn't need any drivers for PC. For K series (MSR K), it can emulate normal keyboard interface, and send the data as normal PC keyboard.

You can get the card data by using notepad (Windows system) or in DOS prompt or any words editor.

For R series (MSR R), it communicates via RS232 port (COM) to PC.
You can connect MSR R to a RS232 COM port on PC which is free for using (for example: COM2) and getting the card data by some kinds of RS232 communication software. In programming language software, just open the COM ports for reading data. For example in Visual Basic, use MSCOMM32.OCX for designing the RS232 communication program and getting the card data.

All settings of MSR can be programmed by the programming tool which include in the CD,
The programming tool supports for Windows OS system like: Windows 95/98/Me/NT/2000/XP …
Please install the "setup.exe " before you restart your Windows operating system. After finished the installation , please run the "programming tool.exe" for starting programming.

1. Auto detecting the MSR K/MSR R

The programming tool will start to detect automatically the MSR/MSR R which was connected to PC. You can press the button [CANCEL] to abort the auto detection.
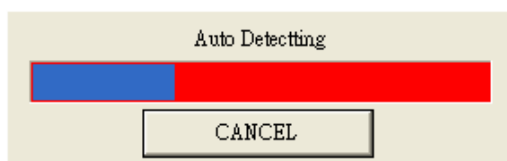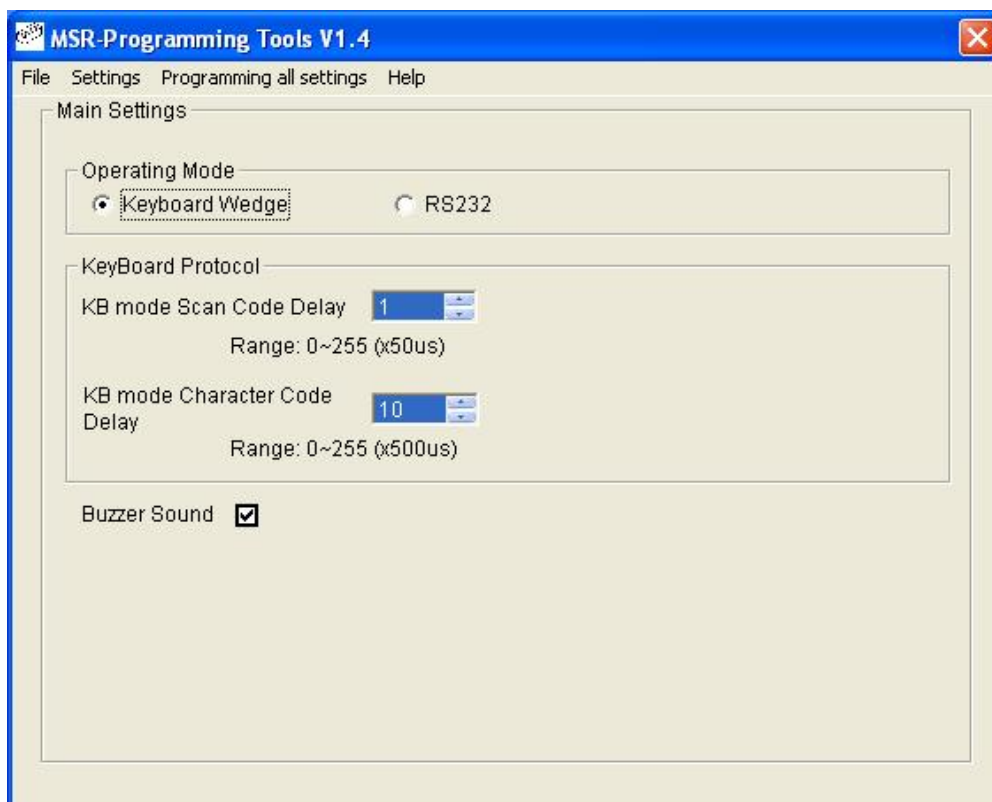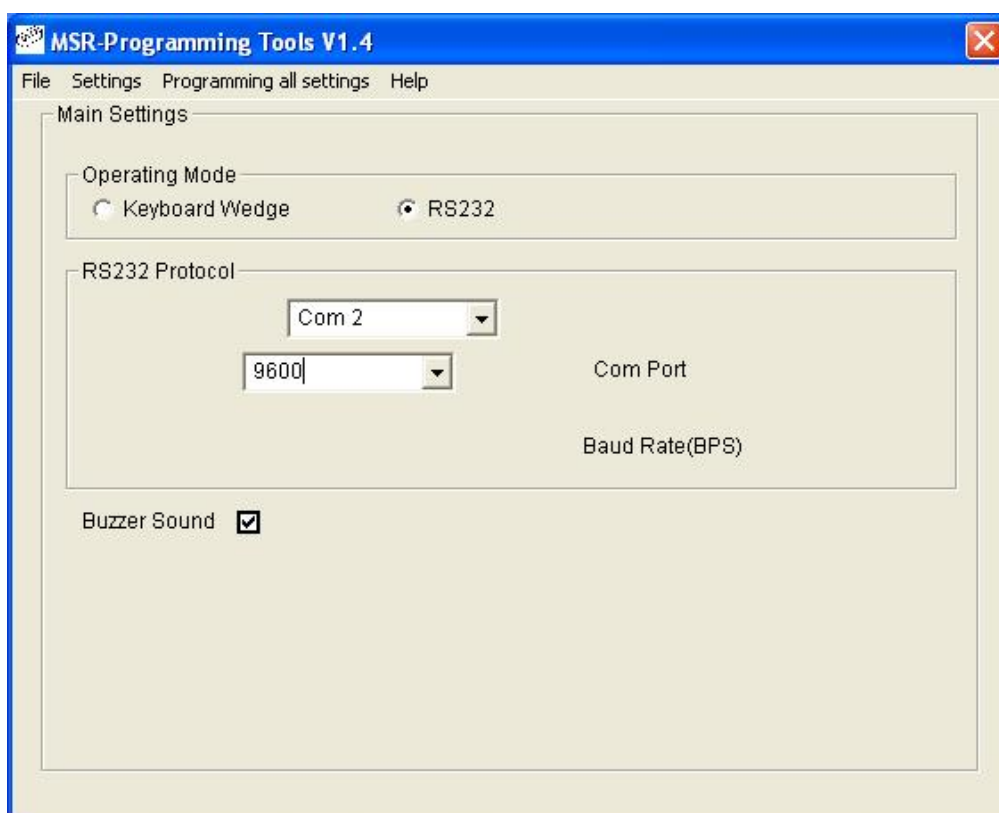
2. Main interface sets

If Auto detection was ok, then main screen shows the operating mode of MSR that you are using. The image PIC-01 will be shown when MSR K (keyboard mode) detected.
Or, The main screen will be shown as PIC-02 when MSR R (RS232 mode) detected.
(The COM port is 2 for example)

PIC-01

PIC-02

Keyboard Mode:

KB mode Scan Code delay

The range is between is 0~255, default is 1.

Set the large value will slow down the speed of KB data sends out, yet it will be more compatible if you are facing the problem with slow PC.

KB mode Character Code delay

The range is between is 0~255, default is 10.

Set the large value will slow down the speed of KB data sends out, yet it will be more compatible if you are facing the problem with slow PC.
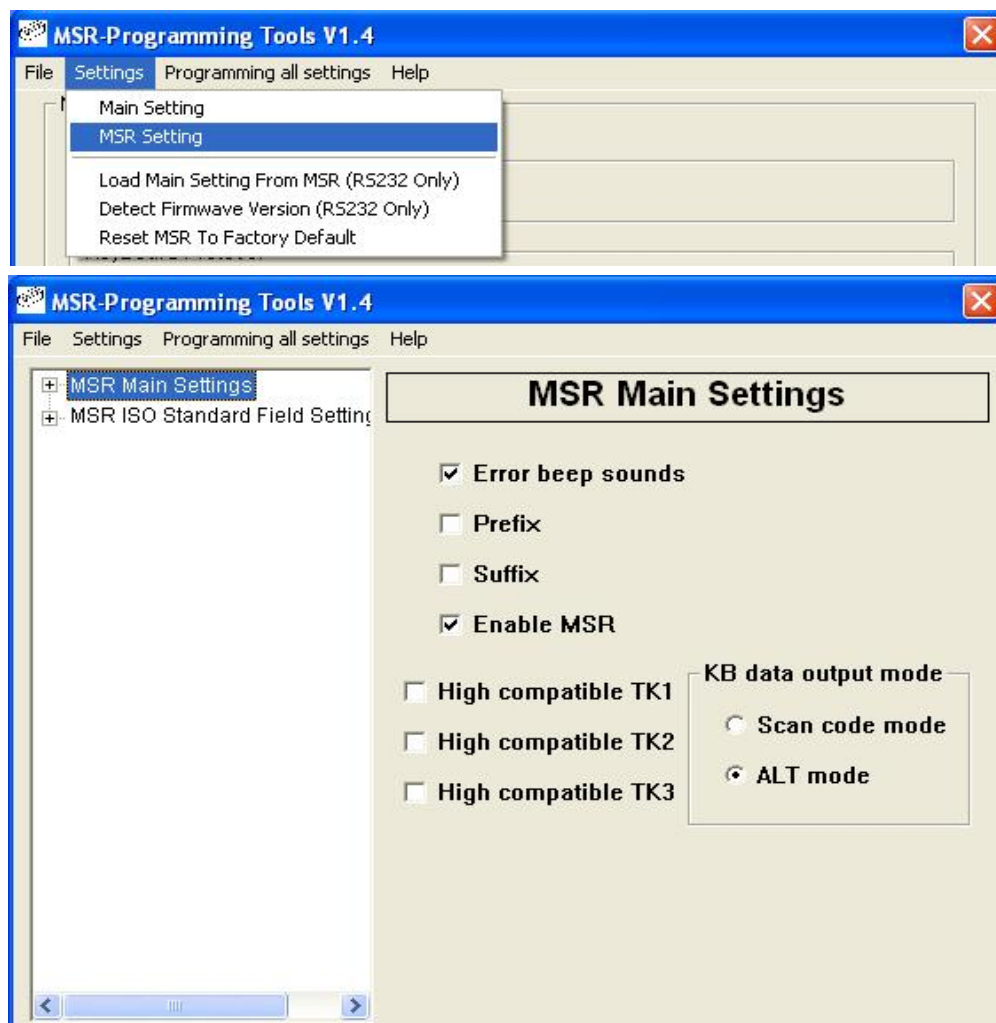
RS232 mode:

Com port value is for MSR R exists.

Baud rate is for setting MSR R RS232 communicates speed.

Buzzer Sound:

For enable / disable sounds of MSR, please click the check box for setting.

3. MSR Setting

Error Beep Sound

For enable / disable sound when MR reads card and error happened.

Prefix / Suffix

Enable or disable prefix / suffix for card data

When on the check box, you can edit the prefix / suffix, key in up to 7 characters.

You can key in data in text field directly, or use the mouse click the number and then enter the ASCII code.

Note:

The format of output data is:

[Prefix] [Track1 data] [Track2 data] [Track3 data] [Suffix]

[Track x data] = [Track x prefix] [Start sentinel] [card data] [End sentinel] [LRC sentinel] [Track x suffix]

[card data] = [ISO data field 1] [ISO data field 2] [ISO field 3] [CR] [LF]

Refer to MSR track 1/2/3 settings, and ISO format settings for the details.

High compatible TK1,TK2,TK3

For enable / disable high compatible mode for reading data from Track1/2/3

, to enable the option, the decoder will turn off some digit check for reading card data,

It will be more efficient to read bad cards which used for long time and damaged a little bit.

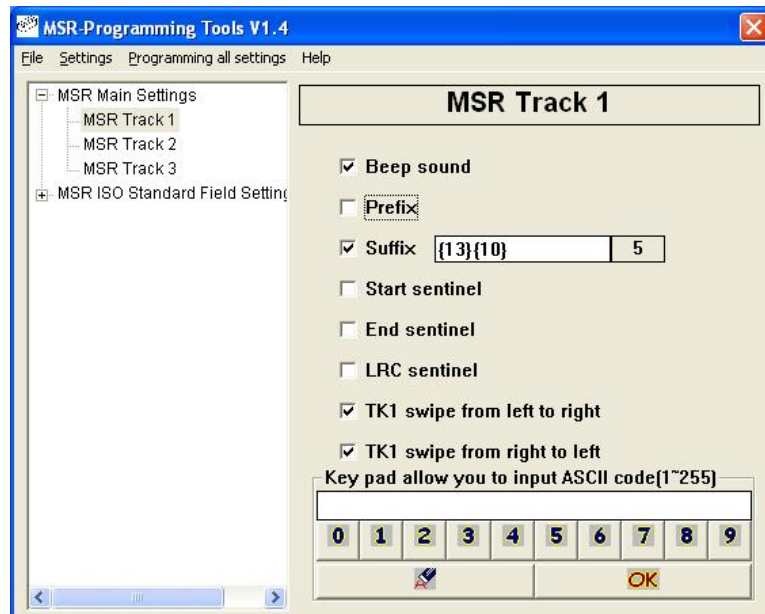**KB data output mode**

To set Scan Code mode, and then card data will be sent to PC by scan code, it emulates the normal keyboard code. To set ALT mode, card data will be sent by ASCII code mode.

4. **MSR Track1 / Track 2 / Track 3 individual Setting**

Double click the "MSR main settings", will show up another track1/track2/track3 settings,

Please choose one of them for setting.

Error Beep Sound

For enable / disable sound when MSR reads card and error happened.

Prefix / Suffix

Enable or disable prefix / suffix for card data

Start Sentinel

Enable / Disable track start sentinel

(Track 1 start sentinel is " % ", Track 2 / 3 start sentinel is " ; ")

End sentinel

Enable / Disable track end sentinel

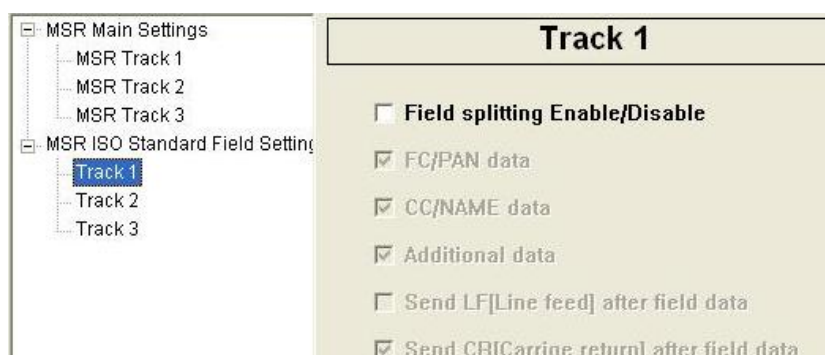(The end sentinel is " ? " for all tracks)

LRC sentinel

Enable / Disable track LRC sentinel

(LRC = first byte data XOR second byte data XOR third byte data   .… last bye data)

TKx swipe from left to right and swipe from right to left

You can make choice to decide the user to swipe card and read data only from left to right or from right to left or both ways.

5. MSR ISO Standard Field Setting

The track data can be split by the "Field splitting Enable/Disable".

If the card you used was recoded by ISO standard field format, you can decide what fields you want to display. The default is set to display all fields.

Every field can be split by LF (line feed) or CR (carriage return), Please make choice on [Send LF (Line feed) after field data] or [Send CR (Carriage return) after field data].

6. Load Main Setting From MSR

Choose for up loading settings from the device to PC, this function only can be active by RS232 cable.

7. Detect Firmware Version
Choose for detecting firmware version of current the device, this function only can be active by RS232 cable.
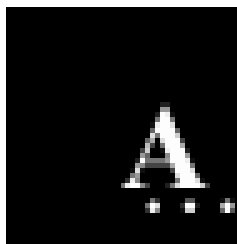
8. Reset MSR to Factory Default
Choose for resetting the device to factory default settings, this function can be active either with KB or RS232 cable.

9. Programming all settings

Choose for writing all settings you defined to MSR, please select via keyboard or via RS232 which depends on what cable you are using.

Appendix I : Specifications

Model	1288
Decoding Capability	Triple-tracks: Tracks 1 & 2 & 3
Card Reading Speed	7.5 to 125 cm/sec
	Bi-directional
Magnetic Head Life	300,000 passes
Card Format Supports	ISO standard 7810,7811,7812,7813
Status Indicator	Audible beep for each
	Successful reading
Programming Capabilities	Track selection
	Prefix (7 characters max.)
	Suffix (7 characters max.)
	Field selection
	Start and end sentinel
	LRC selection
	Inter-character delay
	Inter-scan code delay
	RS232 parameters (baud rate,)
System Compatibilities	RS232C interface : IBM AT, Compatibles.
	USB interface : USB port on IBM AT or compatibles
	Keyboard Wedge Interface : IBM AT, PS/2
Power Requirement	Model MSR K: from KB port.
	Model MSR R: from USB power(+5V DC)
	Model MSR U: from USB port (+5V DC)
Power Consumption	During operation: max 300 mA
	While idle: 60 mA
Physical Dimension	
Dimension (L)x(W)x(H)mm	Physical: 115mm x 46mm x 34mm
	Package: 238mm x 146nn x 47mm
Weight	N.W: 100g
	G.W: 110g
Color	Black, White
Environment	

Operating Temperature	0℃ ~ 45℃ (32℉ ~ 113℉)	Storage Temperature	-20℃ ~ 60℃ (-4℉ ~ 140℉)
Operating Humidity	0% ~ 80% RH non condensing	Storage Humidity	10% ~ 90% RH non condensing

| **Certification**	
EMC & Safety	FCC, CE, RoHS, Class A

This equipment has been tested and found to comply with the limits for Class A digital device. Pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and if not installed and used in accordance with the instructions may cause harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to Radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. This booklet is available from the U.S. government Printing Office, Washington, DC 20402, Stock NO.004-000-00345-4.

> Caution: Any changes of modifications not expressly approved by the grantee of this device could void the user authority to operate the equipment.

Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received including Interference that may cause undesired operation.
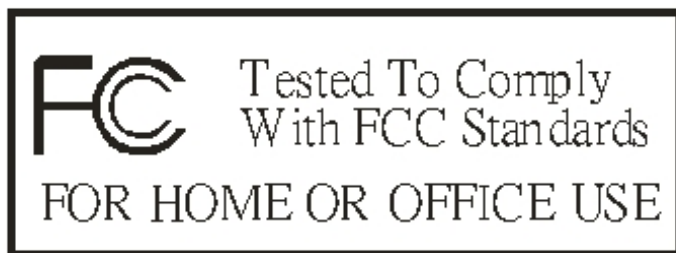
Troubleshooting

Q1. When 1288 USB plug-in the USB port, the operating system will require to install the driver?

Ans: It needs to install the specialized driver of 1288 USB. After installation, it will produce a virtual COM port in the administrator.

Q2: 1288 USB swipes with "Beep" sound, but the data can't show up on the screen.

Ans: Step 1. Confirm the 1288 driver installation properly.
Step 2. Confirm the testing program of RS232 or COM operating properly and the
Step 3. Confirm the Baud Rate of opening COM port is 9600.
Step 4. Confirm there is no application program using the COM port.
Step 5. If the "Beep" sound is long-short-short, it means the card reader can't read the data from the card. Please check the card status in advance is available or change new card for testing.

Q3.1288 USB plug-in to USB port, there is no reaction.

Ans: A. Use other USB devices for testing the USB port is available or not.
B. If the USB port is ok, use new 1288 USB for testing the unit is available or not. If not available, it means the 1288 USB is damaged.

Q4. The 1288 USB transmission speed?

Ans: Please note the USB communication Interface is 1.1 Version. The transmission Baud Date of the virtual RS232 COM port is 9600bps-N-8-1.

Q5. Why 1288RS232 needs to connect the 5V Power supply?

Ans: Because the PC Standard COM port doesn't provide the output of power.

Q6. What is the function of the switches in 1288?

Ans: Please refer to 1288 manual explanation.

Q7. After connecting the cable of 1288 K keyboard to PC, the swiping data can't show up on the screen?
Ans: A. The connection of 1288 K keyboard cable should be ready before you turn on the computer. Otherwise, the keyboard device is no action.
B. Please use the software which can receive from the keyboard data for testing, such as Notepad, Microsoft Word..so on.

Q8. Installation of 1288 Series, how about the normal "Beep" sound?

Ans: Plug-in the power supply, it will have the response of sound, "Beep". After 1288 device automatically checks, 1288K will have 2 short sounds, 1288 USB/R will have 2 long sounds. The led indicator will present "Green."
If the sound is 1 short and 1 long sound, the led indicator is glimmering and exchanging. It means the 1288 firmware is wrong. Please check the firmware version and upgrade it.

Q9. Why the swiping data has omitted?

Ans: A. If the model no. is 1288K, it has the possibility of the system busy when swiping the card or the software can't receive the data in time.
Note: The transmission is same as the standard keyboard. We suggest you use the specialized programming tool of 1288 for adjusting the speeding of keyboard transmission the data.

B. If the model no. 1288 USB or 1288 RS232, It caused by operating system busy or the program transmission mode /writing is wrong. We suggest you use the standard RS232 testing program for testing and confirmation.Such as Hyper Terminal…so on.

Q10. Why other brands card readers show up the prefix code when sending the swiped data?

Ans: For standard ISO card has the rules. Each card has tree tracks. In front of the track, it has the prefix and a suffix code, such as the first track is %...so on. Our 1288 devices default would not send these data out. These setting can be set by the the programming tool or the switches on the card reader for customers demands.

Q11. After swiping the credit card, besides presenting the card number on the second track, why it still has other data come out?

Ans: The 1288 standard setting is sending all the data out which is stored on the second track.If the user just needs to read the credit number without other information, it just needs to adjust the internal switch 2 into " On" status.