

# Magnetic Stripe Reader

## SERIES 1210

### Operation Manual

Version 1.0



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's 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.

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Version*

# 1

## Before You Install

This manual describes functions and usage of the Series 1210/1220 magnetic stripe reader, including both keyboard wedge and RS232 interface options.

The 1210/1220 is a bi-directional magnetic stripe reader which is easily formatted to ISO requirements. It is intended for use with credit authorization terminals, point-of-sale terminals, portable terminals, personal computers and banking terminals.

Model 1210/1220K is designed to be used with IBM XT, AT and PS/2 computers, entering data as if it were being generated through the keyboard. No software modification, nor programming of input/output devices, nor additional power supply are needed.

Model 1210/1220R operates as an on-line card reader which communicates with any computer via an RS232 interface. The 1210/1220R requires +12VDC from either an external power supply or the internal power of your computer or terminal.

## **Step 1: Turn off your computer**

By shutting off your computer, you will prevent any accidental damage to the stripe reader and computer.

## **Step 2: Review packing list**

Please ensure that your card reader shipment is complete.

Model 1210/1220K (keyboard wedge interface) includes:

- 1 pce 1210/1220K Card Reader
- 1 pce Communication Cable
- 1 pce Operation Manual

Model 1210/1220R (RS232 interface) includes:

- 1 pce 1210/1220R Card Reader
- 1 pce Operation Manual
- 1 pce +12V DC Power Plate with internal power cable
- 1 pce DC cable
- 1 pce Communication Cable

## **Step 3: Determine installation mode**

Model 1210/1220 reader supports both keyboard wedge mode and RS232 mode in one unit. The mode has been set according to your purchase order. In the event you want to change it by yourselves, please set the jumpers on the PCB accordingly and refer to Chapter 2 for keyboard wedge interface and Chapter 3 for RS232 interface.

# 2

## Installing Model 1210/1220K

This chapter describes the procedure for installing the 1210/1220K magnetic stripe reader. Several keyboard wedge parameters—including keyboard type, message suffix, inter-character delay, and track sentinels—may be adjusted by modifying the dip-switch settings on the underside of the magnetic stripe reader.

### Step 1: Turn off your computer

If you have not already done so, turn off your computer to avoid any accidental damage to the card reader and your computer.

### Step 2: Set transmission mode and keyboard type

The first three dip-switches and SW7 on Model 1210/1220K allow for the selection of the transmission mode and keyboard type. Locate your keyboard model and set the dip-switches accordingly. This card reader offers 2 modes for data transmission, you are recommend to use the default “SCAN MODE” setting for normal operation with full PC/AT compatibility. For non-US keyboard characters, please set the

switch to “ALT” mode. And you are advised to switch on the “Num Lock” key under WINDOWS when you are using the “ALT” mode.

MODE		SW1	SW2	SW3	SW7
ALT	IBMPC-XT	OFF	OFF	OFF	OFF
	IBMPC-AT	ON	OFF	OFF	OFF
	IBMPS/55,PS/2 50/60/70/80	OFF	ON	OFF	OFF
	IBMPS/2 25/30	ON	ON	ON	OFF
	IBMPS/2 3477	ON	OFF	ON	OFF
SCANMODE *		OFF	ON	ON	ON

### **Step 3: Set message suffix**

Switch 4 activates CR/LF (Carriage Return and Line Feed) at the end of data from the magnetic stripe. Set the dip switches according to your requirements.

CR/LF	SW4
ENABLE *	ON
DISABLE	OFF

## **Step 4: Set inter-Character delay**

The inter-character delay is used to adjust the speed to avoid the garbage data transmission from the card reader through the keyboard wedge. These fine-tuning adjustments are helpful when connecting to terminal, notebook computer or the one that is not 100% IBM-compatible.

INTERMESSAGEDELAY	SW5	SW6
0 msec *	OFF	OFF
10 msec	ON	OFF
20 msec	OFF	ON
50 msec	ON	ON

## **Step 5: Set start and end sentinels**

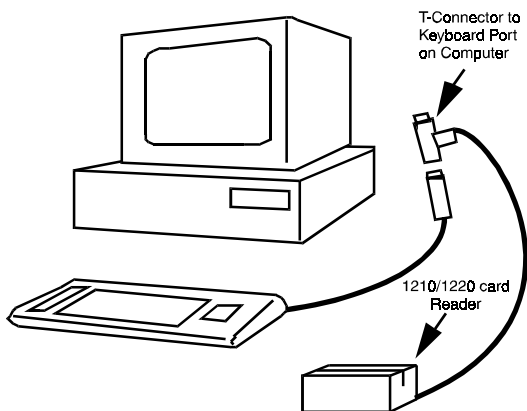
The start and end sentinels following ANSI 4.16 and ISO 7811/2 may be activated with switch 8.

SENTINEL	SW8
ENABLE	ON
DISABLE *	OFF



## **Step 6: Connect to computer**

Unplug the PC keyboard cable from the computer. Plug the keyboard cable into the 5-pin female end of the T-connector provided. Plug the male end of the T-connector into the keyboard port of your computer. An installation diagram is shown below.



### **1210/1220K Magnetic Stripe Reader Keyboard Wedge Installation**

## **Step 7: Turn on computer**

Turn on your computer. The computer should boot up normally. Model 1210/1220K will “beep” to indicate that it is ready for operation

## **Step 8: Turn to Chapter 4**

You are now ready to test your 1210/1220K magnetic stripe reader. Turn to Chapter 4.

# 3

## Installing Model 1210/1220R

This chapter describes the procedure for installing the 1210/1220R magnetic stripe reader. Several RS232 parameters—including baud rate, data bits, parity, message suffix, and track sentinels—may be adjusted by modifying the dip-switch settings on the underside of the magnetic stripe reader.

### Step 1: Turn off your computer

If you have not already done so, turn off your computer to avoid any accidental damage to the stripe reader and computer

### Step 2: Decide the ways of communication

The 1210/1220R supports single or dual RS232 communication. You can set the jumpers on the PCB inside housing according to the following table by yourselves. We also offer the optional RS232 Y-cable(GC-1210-Y)for the dual RS232 communication.

	JP1	JP3	JP4
SingleRS232* communication	Open	All open	All open
Dual RS232	Open	Pin 1 & 2 short	Pin 1 & 2 short
Singlethrough DB9Female	Open	Pin 1 & 2 short	ALL open
Singlethrough DB9Male	Open	ALL open	Pin 1 & 2 short

### **Step 3: Set baud rate**

The baud rate must be set to match your system requirements. Select the appropriate baud rate and set dip-switches 1 and 2 accordingly.

BAUDRATE	SW1	SW2
19200 bps	ON	ON
9600 bps *	OFF	ON
2400 bps	ON	OFF
1200 bps	OFF	OFF

### **Step 4: Set data bits**

Dip-switch 3 controls the data-bits setting. Set the switch ON for 8 data bits and OFF for 7 data bits.

DATABITS	SW3
8 BITS *	ON
7 BITS	OFF

### **Step 5: Set parity**

Parity may be set to ODD, EVEN, or NONE with switches 4 and 5 in combination.

PARITY	SW4	SW5
EVEN	ON	ON
ODD	OFF	ON
NONE *	OFF	OFF

## **Step 6: Set message suffix**

Switch 6 activates CR (carriage return) at the end of each track of information from the magnetic stripe. Likewise, switch 7 activates LF (line feed) at the end of each track. Set the dip-switches according to your requirements.

It is also possible to activate CR or LF at the end of each card swipe rather than at the end of each track. Contact your distributor for more information.

CR	SW6
ENABLE*	ON
DISABLE	OFF

LF	SW7
ENABLE*	ON
DISABLE	OFF

## **Step 7: Set start and end sentinels**

The start and end sentinels may be activated with switch 8.

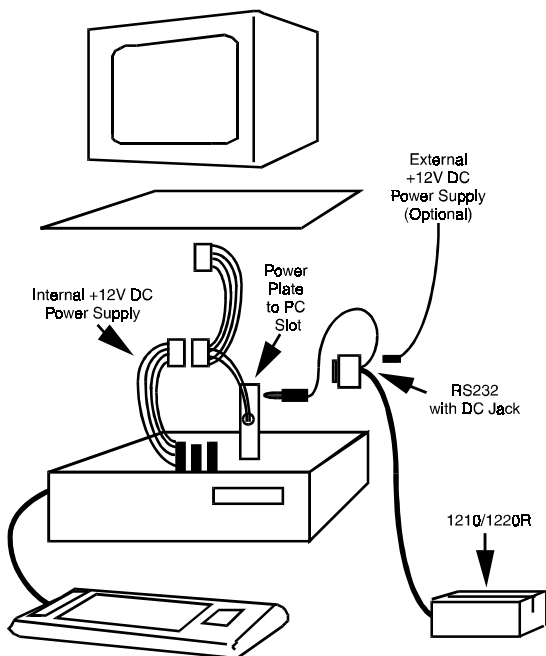
SENTINEL	SW8
ENABLE	ON
DISABLE*	OFF

## **Step 8: Decide on power access**

The RS232 connection requires +12V DC. This may be provided through an internal connection in your computer or through an external connection to a 110V/220V adapter. The components for an internal connection are provided. If you are using an external connection, be sure that your adapter conforms with the specifications listed in Appendix I; then go to Step 9.

## **Step 9: Using internal power source**

Please refer to the installation diagram on the following page. Remove the access cover to your computer. Mount the +12V DC power plate on an available expansion slot in the back of your computer. Attach the 4-pin male connector to the open female connector of the same type in your computer. Alternatively, an internal power source may be available already if the 9-pin RS232 port on your computer or terminal matches the 1210/1220R pin assignment (see Specifications in Appendix I).



**1210/1220R Magnetic Stripe Reader  
RS232C Installation**

**Step 10: Connect to your computer**

Connect the 9-pin female RS232 connector (DB9F with DC jack) to the male equivalent (DB9M) RS232 port on your computer or terminal. Provide power to the DC jack on the DB9F connector using either a cable connection to the +12V DC power plate or an external adapter.

**Step 11: Turn on your computer**

Turn your computer. It should boot up normally. The card reader should activate with a “beep” indicating a successful installation. You are now ready to test your 1210/1220R magnetic stripe reader. Turn to Chapter 4.

# 4

## Testing and Troubleshooting

### Testing 1210/1220K (keyboard interface)

Hold the 1210/1220K magnetic stripe card reader or secure it on a flat surface. Slide a magnetic stripe card through the bi-directional card slot, making sure that the magnetic stripe is facing the magnetic head of the card reader.

Model 1210/1220K will “beep” to indicate a successful read. The card data will display on the screen in the format which was programmed into the card reader.

### Testing 1210/1220R (RS232 interface)

In order to test the RS232 interface, the computer must be operating in a terminal or on-line mode. This can be done by using terminal-emulation utility software such as TELIX and PROCOMM. Alternatively, a simple program written in BASIC is sufficient for this purpose:

```
10 open"COM1:9600,N,8,1,rs,ds,cs" as #1
20 input #1, A$
30 print A$
40 go to 20
```

With this program running, slide a magnetic stripe card through the bi-directional card slot, making sure



that the magnetic stripe is facing the magnetic head of the card reader.

Model 1210/1220R will “beep” to indicate a successful read. The card data will display on the screen in the format which was programmed into the card reader.

## **Troubleshooting Series 1210/1220**

<b>Situation</b>	<b>Solution</b>
Card reader does not transmit the correct data	<ul style="list-style-type: none"><li>• On 1210/1220K keyboard wedge version: Be sure that the dip-switch setting corresponds with the type of keyboard. Try adjusting the inter-character delay, perhaps your computer keyboard interface is not 100% IBM AT compatible.</li><li>• On 1210/1220R RS232 version: check the RS232 parameter settings (baud rate, parity, etc.). Be sure that it matches the requirements of your application system.</li></ul>
Card reader does not transmit any data	<ul style="list-style-type: none"><li>• Check the magnetic stripe on the card. Is it in good condition?</li><li>• Adjust the speed with which you swipe the card through the reader so that it is not too fast nor too slow.</li></ul>



## Appendix I

### Specifications

- |                               |   |
|-------------------------------|---|
| <b>Decoding Capability</b>    | <ul style="list-style-type: none"><li>• One Track: Track 1 or Track 2 or Track 3</li><li>• Two Tracks: Tracks 1 &amp; 2 or Tracks 2 &amp; 3</li><li>• Three Tracks: Tracks 1 &amp; 2 &amp; 3</li></ul>  |
| <b>Card Reading Speed</b>     | <ul style="list-style-type: none"><li>• 8 to 125 cm/sec</li><li>• Bi-directional</li></ul>  |
| <b>Magnetic Head Life</b>     | <ul style="list-style-type: none"><li>• 300,000 passes</li></ul>  |
| <b>Status Indicator</b>       | <ul style="list-style-type: none"><li>• Audible “beep” and RED LED for each successful reading</li><li>• Green LED for standby status</li></ul>   |
| <b>Parameter Settings</b>     | <ul style="list-style-type: none"><li>• Start and end sentinel</li><li>• Inter-character delay</li><li>• Message suffix</li><li>• RS232 parameters (baud rate, data bit, parity)</li></ul>  |
| <b>System Compatibilities</b> | <ul style="list-style-type: none"><li>• Model 1210/1220K keyboard wedge interface operates with IBM XT, AT, PS/2 and compatibles.</li><li>• Model 1210/1220R has standard RS232 DB9F interface for easy installation within any existing system that has RS232 port capability.</li></ul> |

## Specifications


### Physical

- Dimensions: 100mm x 42mm x 27mm(LxWxH)
- Weight: 100g

### Environmental

- Operating temperature: 0-40 °C
- Storage temperature: -20-60 °C
- Humidity: 10% - 90% RH (non-condensing)

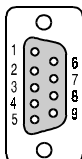
### Power Requirements

- Model 1210/1220K: +5V from host or terminal
- Model 1210/1220R: +12VDC directly from host, or through adapter from external 110V/220V, 50Hz/60Hz source with polarity as follows: 

### Power Consumption

- During operation: max 300 mA
- While idle: 60 mA

### Interface Connector Pin Assignments



#### DB9 RS232 Interface

- #2: TX
- #3: RX
- #5: Ground
- #9: +12VDC Power



#### DIN5 Keyboard Interface

- #1: PC Clock
- #2: PC Data
- #4: Ground
- #5: +5V



#### DIN5 Keyboard Interface

- #1: PC Clock
- #2: PC Data
- #4: Ground
- #5: +5V

# A

## Appendix II

### The Installation for ACDE Version

This ACDE version of 1210 card reader is designed for some special application, it is performed to convert “: ; < = >” data of the track II & III into “ABCDE” characters following are its switch and jumper setting.

#### Keyboard mode

	ON	OFF
<b>SW1</b>	NON-USKEYB	USKEYB*
<b>SW2</b>	RESERVED*	
<b>SW3</b>	SENDLRC	NOLRC*
<b>SW4</b>	ENABLE* CARRIAGEReturn	DISABLE CARRIAGEReturn

DELAY	SW5	SW6
0 msec*	OFF	OFF
10msec	ON	OFF
20msec	OFF	ON
50msec	ON	ON

ENVIRONMENT	SW7
DOS*	OFF
WINDOWS	ON

SENTINEL	SW8
ENABLE	ON
DISABLE*	OFF

## **RS232 mode**

<b>BAUDRATE</b>	<b>SW1</b>	<b>SW2</b>
19200bps	ON	ON
9600bps *	OFF	ON
2400bps	ON	OFF
1200bps	OFF	OFF

<b>DATABITS</b>	<b>SW3</b>
8BITS*	ON
7BITS	OFF

<b>PARITY</b>	<b>SW4</b>	<b>SW5</b>
EVEN	ON	ON
ODD	OFF	ON
NONE*	OFF	OFF

<b>CR</b>	<b>SW6</b>
ENABLE*	ON
DISABLE	OFF

<b>IF</b>	<b>SW7</b>
ENABLE*	ON
DISABLE	OFF

<b>SENTINEL</b>	<b>SW8</b>
ENABLE	ON
DISABLE*	OFF