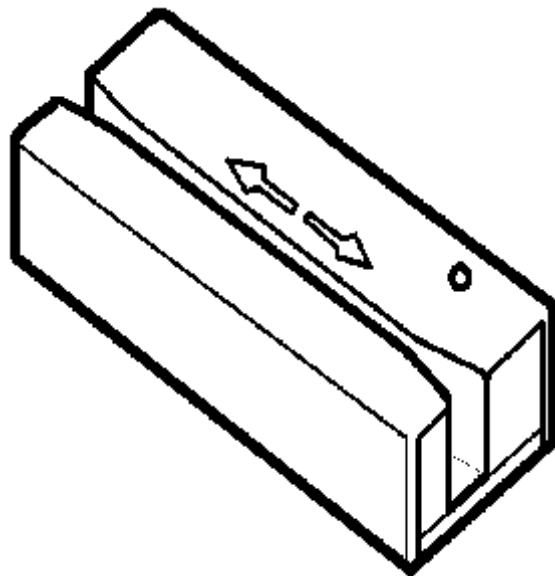


Programmable Magnetic Stripe Reader

for IBM AT, PS/2, USB and Compatible Keyboard Interfaces



ID Innovations Incorporated

Dual and Triple Track (Classic & Value Line Models)

ID Innovations Incorporated

ID Innovations Incorporated was founded in 1993 to provide low cost, high performance hardware and software solutions for the identification market. This market is ever changing and continually growing, requiring products that evolve and a manufacturer with an understanding of the market's needs. All of ID Innovations' products show our commitment to engineering excellence and attention to detail. In order to improve our products and services, we welcome any comments or suggestions that you may have. Our goal is to become your source for providing solutions for your identification technology needs.

Mailing Address

**ID Innovations Incorporated
1244 Karla Drive Suite 104
Hurst, TX 76053
Tel (817) 285-8772
Fax(817) 285-8839**

Shipping Address

**ID Innovations Incorporated
1244 Karla Drive Suite 103
Hurst, TX 76053**

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FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device (Classic Line) or Class B digital device (Value Line), 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 Class A digital equipment (Classic Line) 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.

Value Line Additional Compliance

In addition to FCC Class B compliance, the Value Line of Magnetic Stripe readers are Compliant with the following:

RoHS (Reduction of Hazardous Substance)

CE – (Certified for Europe)

California Proposition 65 Compliant

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Features

The ID Innovations Incorporated Magnetic Card Reader represents the state of the art in keyboard wedge and magnetic stripe card reading. ID Innovations offers two distinct lines of Magnetic Card Readers, the Classic Line and the Value Line.

The Classic Line of Magnetic Stripe Readers offer several different output modes such as Keyboard Wedge, RS232-C, Wand Emulation, USB, USB-HID, USB-Serial and support for over 20 Keyboard Countries and can be programmed using a keyboard. The Value Line of Magnetic Card Readers supports Keyboard Wedge, USB, USB-HID, USB-Serial and up to 3 different card formats (Parsings) from one reader at a low cost.

ID Innovations Card Readers are based on ID Innovations Incorporated's True Wedge technology. The advances that True Wedge technology provide are found in enhanced functionality, such as keyboard configurable parameters, and auto Caps Lock detection. Other features of the ID Innovations Incorporated Magnetic Card Readers include:

- ✦ Dual, or triple track versions allow for reading all types of magnetic cards, including credit/debit cards and drivers licenses
- ✦ Simple installation: Keyboard Wedge, Serial, Wand Emulation, USB
- ✦ MultiMode USB available, Keyboard, Virtual COM Port, HID Mode in one model
- ✦ Superior keyboard wedge interface - NOVELL compatible - auto Caps Lock detection ensures that the data always appears on the computer just the way it is encoded on the card
- ✦ Simple programming from your computer through use of Windows Software and Keyboard.
- ✦ Automatically clones readers in under 10 seconds (Classic Line)
- ✦ Can be used with or without the keyboard
- ✦ Supports USA and International keyboard country layouts
- ✦ Can output any key on the keyboard
- ✦ Programmable preamble, postamble, and termination strings
- ✦ READ/NO-READ indicators (buzzer and bright tri-color LED)
- ✦ Superior reading performance utilizing advanced bit recovery techniques (Classic Line)
- ✦ Wide range of card swipe speeds - fast or slow - even with triple track cards
- ✦ Low power consumption
- ✦ Compact size

 *Note: For a complete list of Part/Model Numbers please visit our Website at www.idinnovations.com.*


Installation – MultiMode USB

The Magnetic Card Reader is available with a USB cable that terminates in a Universal Serial Bus (USB) Type A connector. Most new computers have multiple USB ports that can be used with a wide variety of peripherals. Simply plug the connector into an available USB port and the operating system will display a dialog box to guide you through the installation process. The device driver that Windows will install for this device is the driver used for HID keyboard devices and is part of the Operating System. In some installations Windows will locate all of the files it requires without requiring any user intervention. However, sometimes Windows will request the location of the files it needs. In these cases you may need to have your Windows Installation CD in order to complete the installation. Most of these type installations simply require you to click on the **Next** and **Finish** buttons repeatedly.

The ID Innovations Incorporated USB Magnetic Card Reader can be installed to output data in a variety of ways. No other Magnetic Card Reader on the market can match its versatility.

Installation – USB Keyboard Wedge (Default)


By default when you install the ID Innovations Incorporated Magnetic Card Reader it will output Card Data as Keyboard keystrokes. This allows host applications designed to acquire Card Data from keyboard input, to seamlessly receive data from the Magnetic Card Reader. This mode of operation requires no additional software drivers and is available on Windows, Linux and MAC operating systems.

 *Note: A Windows **USB Accelerated keyboard driver** is available for Free download from our Website at www.idinnovations.com for use with the ID Innovations Incorporated USB products. This driver will output Card Data 3 to 5 times faster than the standard windows keyboard driver. In addition, this driver will block the user from entering keystrokes during transmission to ensure that Card Data is not corrupted and it will allow you to modify the data from the card reader even further.*


Installation – USB Virtual COM Port

Features

If you have a POS application that requires, or can support, an RS232 Magnetic Card Reader, you can use the ID Innovations Incorporated USB Magnetic Card Reader. In this mode, the Card Data will be output to a Virtual COM port on your system. Simply select this COM port in your POS application and you will be up and running in no time.

 *Note: In order to use this feature you will need to download the Free software driver from our Website at www.idinnovations.com*


Once you have downloaded and installed the software driver, you can create the Virtual COM port to be used by your POS software. Simply install the driver icon in your startup folder on your computer and it will be loaded each time your computer is powered up. When the driver is loaded all Card Data will be transmitted to the COM port and into your application.

 *Note: In most RS232 installations you have to match up the COM port settings of the Card Reader and POS software. However, when using the ID Innovations Incorporated USB Virtual COM port driver you need not concern yourself with this step. The driver will automatically present the Card Data in the proper Baud Rate, and Parity settings for your application.*

Installation – USB HID Mode

The ID Innovations Incorporated Magnetic Card Reader can be operated in several different modes. As explained above it can be used in either a Keyboard Wedge or Virtual COM port mode of operation. In addition to these modes, you can interface to the Magnetic Card Reader using USB Human Interface Device (HID) Class specification Version 1.1 Windows API calls. In these modes the Magnetic Card Reader behaves like a vendor defined HID device so that a direct communication path can be established between the Host application and device without interference from other HID devices.

The ID Innovations Incorporated Magnetic Card Reader provides two different HID interfaces. The first interface can be used to Sequentially receive Card Data in ASCII form in multiple 5 byte Input records. The format of the Card Data transmission is dependent on the program settings of the Magnetic Card Reader. The second HID interface transmits the Card Data in a Formatted mode where Tracks 1, 2 and 3 are transmitted in a single large Input record. In this mode of operation the Input record is a fixed size, therefore all bytes of this record are transmitted regardless of the Tracks read by the Magnetic Card Reader or the program settings.


 *Note: For more information on either of these modes and program assistance in developing your applications contact ID Innovations Incorporated.*


Installation - Keyboard Wedge (PS2 Style)

The Card Reader is installed between the computer and the keyboard. The keyboard cable is plugged into the Card Reader using the connector labeled "KB". The Card Reader is then connected to the computer using the connector labeled "PC". The PS2-Y cable is a wedge cable that has two 6 pin Mini-DIN connectors for both the keyboard and the PC.

Installation – Serial (PS2 Style)

To install the Card Reader serially you will need a ID Innovations, Serial Converter. The Serial Converter is used to convert TTL signal levels to RS-232 signal levels. The Serial Converter is readily available in a 9-pin straight cable configuration for direct connection to PCs and a 25-pin Y cable configuration for connection between a Terminal and Host devices. When connecting the Card Reader to the Serial Converter the PC side of the Card Reader cable should be connected to the 6-pin connector of the Serial Converter. If you are connecting the Card Reader to a 25-pin Serial Converter, the 25-pin connector marked TERMINAL should be connected to the Terminal side and the 25-pin connector marked HOST should be connected to the Host side. For information on cable pin-outs see Appendix D


 *Note: Do not connect a keyboard to the Card Reader when operating in Serial mode. If you have a keyboard connected to the Card Reader when power is first turned on, the Card Reader will revert back to the Keyboard Wedge mode of operation. A keyboard should only be connected to the Card Reader after power is turned on, so that you may configure the Card Reader using the keyboard.*

 *Note: If you have a device with a powered serial port, that provides +5v @75ma, you may connect the Card Reader directly by using a simple cable adapter and configuring the Card Reader for **Inverted Serial Output**, see **Inverted Serial Output** for more information.*

Installation - Wand Emulation (PS2 Style)

Features

To install the Card Reader in Wand Emulation mode you must first configure the Card Reader for Wand Emulation and the proper segment sizes. In this mode of operation, the Card Reader can be plugged into the Wand port of a bar code decoder and the decoded Card Data is transmitted as Code 128 bar codes. In order to connect the Card Reader to the bar code port of a decoder you may have to use a simple cable adapter, for information on cable pin-outs see Appendix D.

 *Note: Do not connect a keyboard to the Card Reader when operating in Wand Emulation mode. If you have a keyboard connected to the Card Reader when power is first turned on, the Card Reader will revert back to the Keyboard Wedge mode of operation. A keyboard should only be connected to the Card Reader after power is turned on, so that you may configure the Card Reader using the keyboard.*

Installation – USB Adaptor

If you have a Keyboard Wedge Magnetic Card Reader and you wish to install it on the USB ports of a computer, you can use the ID Innovations MultiMode USB Adaptor. The MultiMode USB Adaptor when used in conjunction with a Keyboard Wedge Magnetic Stripe Reader provides all of the capability and performance of the ID Innovations MultiMode USB Direct Connect Magnetic Stripe Reader. For more information on this product visit our website at www.idinnovations.com.

Mounting The Card Reader

The Card Reader can be mounted in one of two ways, using the Two Velcro® strips included or inserting screws into the four threaded inserts on the bottom of the reader. However, if you choose to mount the unit using the threaded inserts, do not use a long screw in the insert by the cable. There is a socket located above the insert that will be damaged by a long screw.

 *Note: It is recommended that you mount the Card Reader to avoid damaging the cable. Frequent bending of the cable can break the wires within it.*

Operating The Card Reader

The Card Reader is designed to read all of the standard magnetic card formats. To read a card, insert the card in the reader with the magnetic stripe facing the magnetic head in the Card Reader. The magnetic head is located on the same side as the LED on the top of the Card Reader. Slide the card through the Card Reader slot, with a smooth stroke, in either direction. When swiping the card through the Card Reader, the LED will turn off. Once you have completed swiping the entire card through the reader, the Card Reader will then set the LED to either green (for good read) or red (for no read). In addition to the green LED on a good read, the Card Reader will sound the buzzer to give you an audible indication that the card was successfully read, and the data is being transmitted to the computer.

Using The Universal Programmer Software to Configure The Card Reader

This programming software is used for configuring ID Innovations USB Magnetic Card Readers and Keyboard Wedge (PS2 Style) Magnetic Card Readers. The main display of the Programmer allows you to view the settings of the configuration in an abbreviated format. In this format you can see all settings that have been changed from default. Many of the keyboard keys used to program the Keyboard Wedge (PS2 Style) Magnetic Card Readers can be used in the Universal Programmers software. This allows customers with existing Keyboard Wedge (PS2 Style) Magnetic Card Readers to quickly become familiar with the Universal Programmers software. All settings available in the Keyboard Wedge (PS2 Style) Magnetic Card Readers can be found within the Universal Programmer Software, for explanations of each setting see page 11.

In addition to allowing you to configure the Magnetic Card Readers the Universal Programmer Software can be used to convert configuration of a Classic Line Reader for use in a Value Line Reader. Likewise you can take Value Line Programming and use it to program a Classic Line Reader.

 *Note: To obtain a Free copy of the Universal Programmer software visit our Website at www.idinnovations.com.*


Using The Setup Mode To Configure The Card Reader (PS2 Style-Classic Line)

The Card Reader can be configured through the use of the computer keyboard. The Card Reader must be installed and powered to enter the setup mode. Once the unit is powered up, press and hold the following keys:

Left-Control, Caps Lock, Right-Shift, and Backspace¹

- or -

Left-Control, F1, Right-Shift, and Backspace²

 *Note: To configure the Value Line Keyboard Wedge reader you will need to obtain a Free copy of the Universal Programmer software from our Website at www.idinnovations.com. However several hot key sequences are available to configure the more frequently used options, see page 23 for more information.*

Once you release the keys, the Card Reader will produce a series of beeps, change the LED to orange and display a message similar to the following on your display:

F1-F10=Options, Use ARROW KEYS to Toggle/Move, ESC=Exit

To ensure that you have enough space on your command line for the Card Reader options to be displayed, we recommend that you either have your command prompt located at the root directory, or that you load an editor with a new file. This will allow the Card Reader to use most of the characters on your computer display. For example, in Windows load Windows Write and in OS/2 load the Notepad program.


Setup is separated into many different categories ranging from "Interface" to "Cloning". The following is a list of function keys and the setup category for which they apply:


¹This is a generic key sequence used to configure any ID Innovations' keyboard wedge device.

²This key sequence is used to configure ID Innovations' keyboard wedge Magnetic Stripe Readers only.

Features

Key	Description
CTRL F10	Resets the current option to the default setting.
ALT F10	Resets all options in current category to default settings.
CTRL Escape	Exit configuration, saving changes.
ALT Escape	Exit configuration, without saving changes.

 *Note: If you experience some character loss during setup, you may press the CTRL-(Keypad Minus) key to slow character transmission. To speed up character transmission, press the CTRL+(Keypad Plus) key.*

 *Note: After 5 minutes of inactivity (no key presses) the Card Reader will exit setup mode and save all changes.*

The following sections document all of the setup mode categories and the individual options within each category.

Keyboard Country: UNITED STATESClassic Line: Value Line:

The Keyboard Country option is used to inform the Card Reader of the keyboard country that should be used when transmitting card data.

 *Note: If you set the **Keyboard Country** to BELGIUM, FRENCH, or GERMANY, then numeric data is sent faster by setting the **Send Numerics As:** option to NUMERIC KEYPAD KEYS.*


The UNIVERSAL Keyboard Country is not actually a country setting. In this mode, the Card Reader sends most data to the computer as a series of ALT keypad sequences. For example, to transmit an "A" to the computer, the Card Reader performs the ALT 065 key sequence on the numeric keypad. It is important to note that this method of communication may not work with your computer hardware and software. It is possible that no data will appear on your computer if you set the Card Reader to output in this mode. If this is the case, you will have to reenter the setup mode and press F1, CTRL F10 and CTRL ESC on the Classic Line Keyboard Wedge models. For all other models simply run the Universal Programmer software and change the Keyboard Country back to the UNITED STATES default setting.

 *Note: In order for the **Keyboard Country** changes to take effect, you must exit the setup mode and save changes.*

Transmit Speed, 0=Fastest:Classic Line: Value Line:

The Transmit speed option is used to control the speed at which card data is sent to the computer. In some instances the Card Reader may overrun the computer if this setting is too fast, or if the computer is busy performing some lengthy operation.

Valid Values: Classic Line: (0-99) Value Line: (0-3)

 *Note: If you are using an active USB Adaptor in conjunction with the Card Reader you will need to slow down the Transmit Speed in order ensure that the USB Adaptor does not lose any keyboard data. USB Adaptors for the most part function properly when a person types on a keyboard but when used with a Point of Sale device such as a Magnetic Card Reader they are unable to keep up with the rate of speed that data is transmitted. Therefore you should set the Classic Line readers to a Transmit Speed of 15 and the Value Line readers to a Transmit Speed of 3.*

CTRL/Special Char Delay (milliseconds): 50Classic Line: Value Line:

The CTRL/Special Char Delay is the amount of time the Card Reader will delay after sending a special character or a CTRL key sequence before sending the next character of data. The characters that are affected by this option are those that are non-printable. For a complete list of the characters, refer to *Appendix-A, Special Characters Table*. This feature is used to prevent overrunning the keyboard buffer when sending function keys and other non-data characters.

Valid Values: Classic Line: (0-255)ms Value Line: (0=None,1=50ms)

Send Numerics As: MAIN KEYBOARD KEYSClassic Line: Value Line:


This option is used to indicate which numeric keys you want the Card Reader to use when transmitting magnetic stripe data to the computer. If this option is set to MAIN KEYBOARD KEYS, then all numeric data will be sent as numerics on the main keyboard. If this option is set to NUMERIC KEYPAD KEYS, then all numerics will be sent from the numeric keypad.

Setup Mode Lockout: OFFClassic Line: Value Line:

This option is used to allow you to lock out the setup mode until the unit is turned off and then powered back on. Once this option is activated and a magnetic stripe card is read, the setup mode will be locked out. This feature is used to prohibit unauthorized changes from being made to the reader's setup parameters.

Output Mode: KEYBOARD WEDGEClassic Line: Value Line:

This option is used to specify the output mode of the Card Reader. This option may be set to KEYBOARD WEDGE, SERIAL, WAND EMULATION, and KEYBOARD WEDGE - AT ONLY.


 *Note: When using the USB version of ID Innovations Incorporated Magnetic Card Reader this option has no effect on Card Data transmission.*

KEYBOARD WEDGE

In Keyboard Wedge mode the Card Reader will automatically detect the keyboard protocol of the host computer. The Card Reader should be installed as specified in the **Installation - Keyboard Wedge** section of this manual on page 7.


SERIAL

In Serial mode the Card Reader will transmit all data serially using the Serial settings below. In order for this mode typically requires you to use a Serial Converter, for more information see **Installation - Serial** on page 7. Plugging the Card Reader into a PC or TERMINAL with a keyboard attached places the reader in keyboard wedge mode, so that you may permanently change the Output Mode.

 *Note: Prior to setting the **Output Mode** to **SERIAL** and connecting the Card Reader serially, configure all of the Serial settings to match your serial device. If you do not properly match the settings, the Card Reader will not output the data properly.*

WAND EMULATION

In Wand Emulation mode the Card Reader will transmit all data as bar code wand data. In this mode of operation, the Card Reader can be plugged into a Wand port of a bar code decoder and the decoded Card Data is transmitted as Code 128 bar codes. Plugging the Card Reader into a PC or TERMINAL with a keyboard attached places the reader in keyboard wedge mode. For information see **Installation - Wand Emulation** on page 7.

 *Note: Prior to setting the **Output Mode** to **WAND EMULATION** and connecting the Card Reader to the bar code port of a decoder, properly configure all of the settings to match your decoders capabilities. If you do not properly match the settings, the Card Reader will not output the data properly.*

KEYBOARD WEDGE - AT ONLY

In Keyboard Wedge - AT ONLY mode the Card Reader must be connected to a AT compatible keyboard interface. In this mode the Card Reader will not autodetect the keyboard protocol of the host computer. The Card Reader should be installed as specified in the **Installation - Keyboard Wedge** section of this manual on page 7.

OLE OPOS Mode: OFF

Classic Line: Value Line:

This option is used to enable the OPOS output mode on Power Up for the Value Line Readers. This mode of output is for use with ID Innovations OPOS Control that is available for download at www.idinnovations.com

Serial Baud Rate: 9600

Classic Line: Value Line:

This option is used to control the speed of the serial communications. This option may be set to 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400.

Serial Data Bits: 8

Classic Line: Value Line:

This option is used to control the number of Data Bits used for each character of serial data. This option may be set to 7, or 8.

Serial Parity: NONE

Classic Line: Value Line:

This option is used to control the Parity of the serial data that is transmitted. This option can be set to NONE, ODD, EVEN, MARK, or SPACE.

Serial Duplex: FULL

Classic Line: Value Line:


This option controls the transmission of the serial data to the Terminal side of the Serial Converter. If this option is set to FULL, serial data is only transmitted to the HOST side of the serial connection. If this option is set to HALF, serial data is transmitted to both the HOST and the TERMINAL sides of the serial connection.

Serial Data Format: ASCII

Classic Line: Value Line:

This option is used to set the format of the data when it is transmitted serially. With the default setting all data is transmitted as ASCII characters. If you set this option to SCAN CODES (PCTERM), all data is transmitted as scan codes. For example, the letter A would be transmitted as the scan code for the key on the keyboard that is used to generate the letter A.

Features

 *Note: The **Keyboard Country** setting effects the scan codes that are transmitted serially. Make sure that the **Keyboard Country** setting matches the Keyboard that you would normally use.*

Inverted Serial Output: OFF

Classic Line: Value Line:

This option is used to control the format of the transmitted serial data. If you are directly connecting the Card Reader to a serial device with a powered serial port and are not using a Serial Converter, set this option to ON.

Serial Intercharacter Delay: 1

Classic Line: Value Line:

This option is used to control the amount of delay between each of the characters transmitted serially. This option is specified in Milliseconds and ranges from 0 to 50.

Serial Caps Lock: OFF

Classic Line: Value Line:

When the Serial Data Format is set to SCAN CODES (PCTERM), this option controls the scan codes that are generated for the NUMERIC KEYPAD KEYS. When the Serial Data Format is set to ASCII this option has no effect.

Serial Num Lock: ON

Classic Line: Value Line:

When the Serial Data Format is set to SCAN CODES (PCTERM), this option controls the scan codes that are generated for the alpha keys. When the Serial Data Format is set to ASCII this option has no effect.

Wand Emulation Append Mode: OFF


Classic Line: Value Line:

The Code 128 bar code specification defines a FNC 2 character that can be used to concatenate two or more Code 128 bar codes. When a bar code with this special character is read, the decoder, stores the bar code and continues reading until a bar code without the special character is read. After reading a bar code without the special character all stored bar code data is transmitted to the host computer as if one bar code was read. This option is used to control the sending of the FNC 2 character.

Wand Emulation Max Segment Size: 18

Classic Line: Value Line:

This option is used to control the maximum number of characters of data that are transmitted in each segment. For example, if 30 characters of magnetic stripe data is read, two segments would be transmitted. The first segment size would be eighteen characters and the second would be the remaining twelve characters of data. Segment sizes can range from 1 to 99 characters.

 *Note: Your bar code decoder will have a maximum number of characters that may appear in a Code 128 bar code. You should consult your bar code decoder manual to determine this number and set the Max Segment Size to the appropriate value.*

Wand Emulation Segment Output Delay: 5

Classic Line: Value Line:

This is the amount of time, the Card Reader waits before sending the next segment of the Magnetic Card data. This delay is used to give the receiving bar code reader enough time to process the previously transmitted segment. This input is in 10ths of a second and ranges from 0 to 30.

Firmware Version and Release Date

This option is an information only option, it displays the internal Firmware version and the Release Date of that firmware. This is useful when you wish to know the version and release date of an ID Innovations Incorporated Card Reader. When you cursor down to this option a message similar to the following will be displayed:

```
:Firmware v1.1 Checksum=D3E2 12/22/94
```

Enable Tracks: 1,2,3Classic Line: Value Line:


The Enable Tracks option is used to enable and disable specific tracks of information on the Card Reader. For example, it may be necessary in some applications to use only Track 2 information. In those cases, Track 2 would be the only track enabled.

Require Tracks: NONEClassic Line: Value Line:

The Require Tracks option is used to indicate the tracks that must be read in order to generate a good read. If this option is set to NONE, then any track read will be considered a good read. This feature is useful if your software requires specific tracks of data from the card.

Data Output Mode: TRACK DATAClassic Line: Value Line:

The Data Output Mode option is used to indicate the output of the Card Reader. If this option is set to TRACK DATA, the Card Reader will output the data one track at a time. If the option is set to FIELD DATA, the Card Reader will output the data as NAME, ACCT # and EXP DATE, as specified by the **Field Output Order** option (See Below). The NAME field is found only on track 1 encoded using format B, and is output in the following format: TITLE, FIRST NAME, LAST NAME. The ACCT # and EXP DATE can be found on either track 1 format b, or track 2. Both tracks must adhere to ANSI/ISO specifications for financial transaction cards.

 *Note: If this option is set to FIELD DATA and you attempt to read a card that does not contain the ACCT # and EXP DATE, the Card Reader will produce an error warble.*

Track Output Order: 1,2,3Classic Line: Value Line:

The Track Output Order option controls the order in which the tracks read are output to the computer. The default for this option sends the tracks in 1, 2, 3 order.

 *Note: This option has no effect if the Data Output Mode is set to FIELD DATA.*

Field Output Order: NAME, ACCT #, EXP DATEClassic Line: Value Line:

The Field Output Order is used to specify the order of the magnetic stripe field data. When the **Data Output Mode** option is set to FIELD DATA, this option allows you to control the order and appearance of each of the fields output. The different settings for this option are as follows:

NAME, ACCT #, EXP DATE	EXP DATE, ACCT #, NAME	EXP DATE, NAME
NAME, EXP DATE, ACCT #	NAME, ACCT #	EXP DATE, ACCT #
ACCT #, NAME, EXP DATE	NAME, EXP DATE	NAME
ACCT #, EXP DATE, NAME	ACCT #, EXP DATE	ACCT #
EXP DATE, NAME, ACCT #	ACCT #, NAME	EXP DATE


 *Note: This option has no effect if the **Data Output Mode** is set to TRACK DATA.*

EXP DATE Format: MMYClassic Line: Value Line:

This option is used to control the format of the expiration date when the **Data Output Mode** is set to FIELD DATA. With this option, the date output can appear as follows: MMY, YYMM, MM/YY, or YY/MM. You may use the **Expiration Date Separator Char** option to change the / character between the Month and Year.

Expiration Date Separator Char: / DEC 47 HEX 2FClassic Line: Value Line:

This option is used to specify the separator character to be inserted between the Month and Year in the Expiration date when the **Data Output Mode** is set to FIELD DATA. For example, to insert a TAB between the Month and Year set the Expiration Date Separator Char to **DEC 9 HEX 09**.

 *Note: Setting the Separator Character to a value from **DEC 0 HEX 0** to **DEC 31 HEX 1F** will display an * as the separator character in the **EXP DATE Format** option.*

Features

Send 6 Bit Field Separator '^' As ^ DEC 94 HEX 5E

Classic Line: Value Line:

This option allows you to change the separator character that is sent for tracks encoded with 6 bit data. You may specify any valid character for the **Keyboard Country** that is currently selected. This is a one character input field, press the key that represents the character or use an ALT keypad sequence to specify the character. For instance, to specify DEC 125, press and hold the ALT key while pressing and releasing the 1, 2 and 5 keys on the numeric keypad. Or you may select the character from the Combo box in the Universal Programmer to specify the character for the Value Line readers. This option has no effect if the **Data Output Mode** is set to FIELD DATA.

Send 4 Bit Field Separator '=' As = DEC 61 HEX 3D


Classic Line: Value Line:

This option allows you to change the separator character that is sent for tracks encoded with 4 bit data. You may specify any valid character for the **Keyboard Country** that is currently selected. This is a one character input field, press the key that represents the character or use an ALT keypad sequence to specify the character. For instance, to specify DEC 125, press and hold the ALT key while pressing and releasing the 1, 2 and 5 keys on the numeric keypad. Or you may select the character from the Combo box in the Universal Programmer to specify the character for the Value Line readers. This option has no effect if the **Data Output Mode** is set to FIELD DATA.

Send Track 2 Start Sentinel '%' As + DEC 37 HEX 25

Classic Line: Value Line:


This option allows you to specify the character to substitute for the track 2 start sentinel so that you can distinguish track 2 data from track 1 data. This is a one character input field, select the character in the Combo box in the Universal Programmer to specify the character.

 *Note: Changing the setting for this option will have no effect if the **Send Start & End Sentinels** option is OFF.*

Send Track 3 Start Sentinel ';' As + DEC 43 HEX 2B

Classic Line: Value Line:


This option allows you to specify the character to substitute for the track 3 start sentinel so that you can distinguish track 3 data from track 2 data. This is a one character input field, press the key that represents the character or use an ALT keypad sequence to specify the character. Or you may select the character from the Combo box in the Universal Programmer to specify the character for the Value Line readers. This option has no effect if the **Data Output Mode** is set to FIELD DATA.

 *Note: Changing the setting for this option will have no effect if the **Send Start & End Sentinels** option is OFF.*

Send Track 3 Start Sentinel '%' As % DEC 37 HEX 25

Classic Line: Value Line:


This option allows you to specify the character to substitute for the track 3 start sentinel so that you can distinguish track 3 data from track 1 data. This is a one character input field, press the key that represents the character or use an ALT keypad sequence to specify the character. Or you may select the character from the Combo box in the Universal Programmer to specify the character for the Value Line readers. This option has no effect if the **Data Output Mode** is set to FIELD DATA.

 *Note: Changing the setting for this option will have no effect if the **Send Start & End Sentinels** option is OFF.*

Send Track 3 Start Sentinel '!' As ! DEC 33 HEX 21

Classic Line: Value Line:

This option allows you to specify the character to substitute for the track 3 start sentinel so that you can distinguish track 3 data. . This is a one character input field, select the character in the Combo box in the Universal Programmer to specify the character.

 *Note: Changing the setting for this option will have no effect if the **Send Start & End Sentinels** option is OFF.*

Features

Send Start & End Sentinels: ON

Classic Line: Value Line:

This option determines whether the Start and End Sentinels for each of the tracks are sent with the card data on a good read. The following is a table of the Start Sentinels per track:

Track	Start Sentinel
1	%
2	;
3	;-or-!-or-%

This option has no effect if the **Data Output Mode** is set to FIELD DATA.

Send LRC Character: OFF

Classic Line: Value Line:

This option determines whether the Card Reader should transmit the LRC character as part of the card data. This option has no effect if the **Data Output Mode** is set to FIELD DATA.

Send Mag Stripe Hardware Control Chars: ON

Classic Line: Value Line:

A magnetic stripe card can be encoded with special characters that are reserved for hardware control. This option allows the Card Reader to send or suppress these special characters. For a complete list of these characters, refer to *Appendix-B, Magnetic Stripe Character Sets*.

No Read Output String:

Classic Line: Value Line:

The No Read Output String is a string that is sent when the Card Reader is unable to read a magnetic stripe card. By default this string is empty, meaning that no characters are sent to the computer if the card is not read. Key in the string to be sent whenever the Card Reader is unable to read a magnetic stripe card. For full instructions on editing this field and the special characters that can be used, refer to the **Preambles** category.

Maximum Length: Classic Line: (32 Chars) Value Line: (4 Chars)

Magnetic Stripe Editing

F3

The Magnetic Stripe editing options allow you to strip leading and trailing characters from the TRACK or FIELD DATA. If the **Data Output Mode** is set to TRACK DATA then the options for TRACK editing are available. If the **Data Output Mode** is set to FIELD DATA then the options for FIELD editing are available. Editing is the last operation on the card data prior to its transmission to the computer.

Track 1 Stripping: # Of Leading Chars: 0

Track 2 Stripping: # Of Leading Chars: 0

Track 3 Stripping: # Of Leading Chars: 0

Classic Line: Value Line:

These options allow you to strip up to 255 characters of leading data from the specific magnetic stripe track. If you attempt to strip more characters than there is data, no stripping will occur.

Track 1 Stripping: # Of Trailing Chars: 0

Track 2 Stripping: # Of Trailing Chars: 0

Track 3 Stripping: # Of Trailing Chars: 0

Classic Line: Value Line:

These options allow you to strip up to 255 characters of trailing data from the specific magnetic stripe track. If you attempt to strip more characters than there is data, no stripping will occur.

ACCT # Stripping: # Of Leading Chars: 0

NAME Stripping: # Of Leading Chars: 0

EXP DATE Stripping: # Of Leading Chars: 0

Classic Line: Value Line:

These options allow you to strip up to 255 characters of leading data from the specific field. If you attempt to strip more characters than there is data, no stripping will occur.

ACCT # Stripping: # Of Trailing Chars: 0


NAME Stripping: # Of Trailing Chars: 0

EXP DATE Stripping: # Of Trailing Chars: 0

Classic Line: Value Line:

Features

These options allow you to strip up to 255 characters of trailing data from the specific field. If you attempt to strip more characters than there is data, no stripping will occur.

 *Note: If the **Data Output Mode** is set to TRACK DATA and you specify to strip 5 characters of leading data from Track 1, then all Track 1 data will be sent after removing the first 5 characters of data. If you then switch the **Data Output Mode** to FIELD DATA, the Track 1 stripping becomes stripping for the ACCT # and the ACCT # stripping will be set to strip 5 leading characters of data.*

Preambles

F4

Magnetic Stripe Preamble:

Classic Line: Value Line:

The Magnetic Stripe Preamble is a string that is transmitted before any card data is transmitted. This string allows you to ensure that the cursor is positioned at the desired location at the time of a card swipe. When editing this option, you may use any of the standard keys on your keyboard. The HOME and END keys will take you to the beginning and end of the Preamble. In order to allow you to embed any key on the keyboard as part of the Preamble, the Card Reader uses certain ASCII characters as special function characters. Special function characters are followed by a two digit HEX value that specifies the attributes of the function. These characters and their function are as follows:

Maximum Length: Classic Line: (32 Chars) Value Line: (5 Chars)

\$ Classic Line: Value Line:

Specifies special characters in the string. A special character is a character that performs a special operation or is a special key on the keyboard, such as a numeric keypad key. For example, to include an F1 key in the string, enter \$80 in the string. For a list of all of the HEX values and the keys that they represent, refer to *Appendix-A, Special Characters Table*.

Classic Line: Value Line:

Specifies an ALT keypad sequence. This is useful when you wish to transmit a graphic character to the computer. For example, to send ASCII 65, HEX 41 as an ALT keypad sequence, enter #41 sequence in the string. For a list of all of the HEX values and the keys that they represent, refer to *Appendix-A, ALT Keypad Table*.

% Classic Line: Value Line:


Specifies international characters for the current **Keyboard Country**. International keys are keys such as the ACCENT key. These keys are specific to the **Keyboard Country** that is currently being used. The only time that you must use this key sequence to enter an international character is when your current **Keyboard Country** setting does not match the one that you wish to use to generate the character. If there are international characters in an input string and you change the **Keyboard Country**, the Card Reader will convert the international characters to % sequences for display purposes when configuring the unit.

* Classic Line: Value Line:

Indicates a delay in the string. This is useful if you desire the Card Reader to delay momentarily while transmitting the string to the computer. The HEX number that follows the * in the string is the number of hundredths of a second to delay before resuming transmission of the string and card data. The delay ranges from *00 (No delay) to *FF (2.55 second delay).

& Classic Line: Value Line:

Specifies a keyboard Scan Code to be sent. This option can be used to emulate a key if it cannot be sent with one of the above special characters. We recommend you use this option with caution because Scan Codes change for keyboard countries as well as keyboard interfaces and protocols. To determine the Scan Codes sent for a specific key, use **Show Scan Codes** in the Diagnostics category (F8). The HEX number that follows the & in the string is the Scan Code to be sent, to send multiple Scan Codes you must use & once for each Scan Code.

 *Note: In order to include the \$, #, %, * and & characters in the string, you must double the character. For example, to include a dollar sign and then a carriage return in a string, enter \$\$\$0D at the string prompt. The consecutive dollar signs indicate that you want to transmit an actual \$ and not a special character.*

Track 1 Preamble:

Track 2 Preamble:

Track 3 Preamble:

Classic Line: Value Line:

Features

The Track 1, 2, 3 Preambles are strings that are transmitted prior to the Track card data. These options are only available if the **Data Output Mode** is set to TRACK DATA.

Maximum Length: Classic Line: (32 Chars) Value Line: (4 Chars)

ACCT # Preamble:

NAME Preamble:

EXP DATE Preamble:

Classic Line: Value Line:


The Account #, Name and Exp Date Preambles are strings that are transmitted prior to the specific field. These options are only available if the **Data Output Mode** is set to FIELD DATA.

Maximum Length: Classic Line: (32 Chars)

Send Preambles/Postambles for Unread Tracks: ON

Classic Line: Value Line:

This option determines if the Preambles/Postambles are transmitted for unread tracks of data. For example, if you swipe a Credit Card and Track 1 is read, but not Track 2, by default both Preambles/Postambles for Track 1 & 2 are transmitted. If you set this option to OFF, only the Preambles/Postambles for Track 1 will be transmitted.

 *Note: Changing this option will also change the option under Postambles.*

Postambles

F5

Magnetic Stripe Postamble:

Classic Line: Value Line:

The Magnetic Stripe Postamble is a string that is transmitted after all card data is transmitted. This string allows you to ensure that the cursor is positioned at the desired location at the time of a card swipe. Editing in this field is done in the same manner as in the **Preamble** fields.

Maximum Length: Classic Line: (32 Chars) Value Line: (5 Chars)

Track 1 Postamble:

Track 2 Postamble:

Track 3 Postamble:

Classic Line: Value Line:

The Track 1, 2, 3 Postambles are strings that are transmitted after the Track card data. These options are only available if the **Data Output Mode** is set to TRACK DATA.

Maximum Length: Classic Line: (32 Chars) Value Line: (4 Chars)

ACCT # Postamble:

NAME Postamble:

EXP DATE Postamble:

Classic Line: Value Line:

The Account #, Name and Exp Date Postamble are strings that are transmitted after the specific field. These options are only available if the **Data Output Mode** is set to FIELD DATA.

Maximum Length: Classic Line: (32 Chars)

Send Preambles/Postambles for Unread Tracks: ON

Classic Line: Value Line:

This option determines if the Preambles/Postambles are transmitted for unread tracks of data. For example, if you swipe a Credit Card and Track 1 is read, but not Track 2, by default both Preambles/Postambles for Track 1 & 2 are transmitted. If you set this option to OFF only the Preambles/Postambles for Track 1 will be transmitted.

 *Note: Changing this option will also change the option under Preambles.*

Termination String: \$0DClassic Line: Value Line:

The Termination String is a string that is sent by default after all Track data and all Track Postambles. The default Termination String is the ENTER key. Key in the string that you wish to use as your termination string. Editing in this field is done in the same manner as in the **Preamble** fields. Or select the Character for the Termination String in the Combo box in the Universal Programmer software to specify the character.

Maximum Length: Classic Line: (32 Chars) Value Line: (1 Character)

Send Termination String: AFTER ALL TRACKSClassic Line: Value Line:

This option is used to indicate where you wish the Card Reader to insert the termination string. The Termination String can be transmitted at the following locations: AFTER ALL TRACKS, AFTER EACH TRACK, BETWEEN TRACKS, AFTER ALL DATA, and OFF. By setting this option to BETWEEN TRACKS, the **Termination String** is sent between any two tracks of data. For example, if tracks 1, 2, and 3 were all read and the output order was the default 1,2,3, the Termination String will be sent after Track 1 and again after Track 2. By default the Termination String is sent after all tracks and all individual track Postambles.


Overview Of Card Data Transmission

By now you realize the great amount of power and flexibility available in the ID Innovations Incorporated Card Reader. Along with great flexibility comes some increase in complexity, as evidenced by the manner in which all of the Termination String, Preambles and Postambles interact. For example, if you read a Triple-Track card in the Triple-Track version of the Card Reader and all of the Tracks are transmitted, the output will be as follows, assuming default values for all options:

```
<Magnetic Stripe Preamble>
<Track 1 Preamble><Track 1 Card Data><Track 1 Postamble>
<Track 2 Preamble><Track 2 Card Data><Track 2 Postamble>
<Track 3 Preamble><Track 3 Card Data><Track 3 Postamble>
<Termination String>
<Magnetic Stripe Postamble>
```

If the **Send Termination String** option is set to AFTER EACH TRACK, then the following will be the output order if you read a Triple-Track card:

```
<Magnetic Stripe Preamble>
<Track 1 Preamble><Track 1 Card Data><Track 1 Postamble><Termination String>
<Track 2 Preamble><Track 2 Card Data><Track 2 Postamble><Termination String>
<Track 3 Preamble><Track 3 Card Data><Track 3 Postamble><Termination String>
<Magnetic Stripe Postamble>
```

 *Note: If the **Data Output Mode** is set to FIELD DATA, then the output order of the fields will follow the **Field Output Order** and the **Field Preambles** and Postambles will be sent where the **Track Preambles** and Postambles are sent.*

Buzzer/LED

F7

Good Read Beep: ONCE FOR ALL TRACKSClassic Line: Value Line:

The Good Read Beep is used to configure the number of times the Card Reader beeps for each track of data read. The settings for this option are ONCE FOR ALL TRACKS, ONCE FOR EACH TRACK, and OFF.

Beep Tone: MEDIUMClassic Line: Value Line:

This option is used to change the tone that is generated on a good read. The available settings are LOW, MEDIUM, and HIGH.

Beep Duration: MEDIUMClassic Line: Value Line:

This options is used to change the duration of the good read beep. The available durations are SHORT, MEDIUM, and LONG.

Features

No Read LED Delay: 10

Classic Line: Value Line:

The No Read LED delay is the amount of time that the LED displays red before returning to the ready green state. This input is in 10ths of a second and ranges from 0 to 65. The default is 10 for 1 second. A value of 0 will set the LED to red and it will not change back to green until a good read occurs.

LED Power Save Mode: OFF

Classic Line: Value Line:

Use this option to enable or disable the LED Power Save Mode on the Card Reader. In the Power Save Mode the LED on the Card Reader will only light up on a good or bad read. If you have a bad or no read the LED will remain lit until the **No Read LED Delay** time has expired. In the Power Save Mode the unit will consume as little power as possible, this mode is excellent for use with LAPTOP computers where power consumption is a primary concern.

Power Up Beep: ON

Classic Line: Value Line:

Use this option to enable or disable the Power Up Beep. This is the beep that is heard when power is first applied to the reader.

Diagnostics (PS2 Style-Classic Line)

F8

Firmware Version and Release Date

Classic Line: Value Line:

This option is an information only option, it displays the internal Firmware version and the Release Date of that firmware. This is useful when you wish to know the version and release date of an ID Innovations Incorporated Card Reader.

Keyboard Information

Classic Line: Value Line:

This option displays the Keyboard ID, Protocol and Scan Code Set that the Magnetic Card Reader is using. For example, a message similar to the following is displayed when connected to a standard IBM AT or Compatible:

```
:Keyboard ID=83AB Protocol=AT Scan Code Set=2
```

Show Scan Codes, SHIFT+ESC=Exit: 5A F0 5A


Classic Line: Value Line:

Use this option to determine the Scan Codes the keyboard sends for each key. Press and release any key or combination of keys to view the Scan Codes sent. This option will display a maximum of 10 Scan Codes at a time. Some keys send different Scan Codes depending on the NumLock, Shift, Control, and Alt key states.

Cloning

F9

The ID Innovations Incorporated Classic Line Card Reader possesses the exceptional ability to configure another ID Innovations Incorporated Card Reader automatically. This option, known as Cloning, is extremely useful if you are configuring several Card Readers with the same setup. With Cloning, you setup the first Card Reader and copy its setup to additional Card Readers.

 *Note: Cloning the Value Line readers is achieved through the use of the Universal Programmers Software.*

Lockout Cloned Reader Setup Mode: OFF


Classic Line: Value Line:

This option is used to lock out the setup mode on the cloned reader. Once the reader has been cloned the only method of changing the setup is by cloning a different setup into the reader, so use this option with caution. This option is useful for configuring readers to be used in an environment where the setup must not be changed. For the Value Line readers this option is listed as **Lockout Keyboard Hotkeys**, which will lockout any of the keyboard hotkeys listed on page 23.

Press ENTER To Begin Cloning

Classic Line: Value Line:

Press the Enter key to activate the cloning mode, from this point, all you need to do is unplug the keyboard and plug in the Card Reader to be configured. The cloning reader will then copy its settings to the other Card Reader, which will beep when it has been successfully cloned. Unplug the newly cloned Card Reader and repeat the process with the next reader. Once you have cloned all of the Card Readers, plug the keyboard back into the cloning reader and press the ESC key to exit Cloning.


 *Note: Cloning the Value Line readers is achieved through the use of the Universal Programmers Software.*

Reset All Defaults?: YESClassic Line: Value Line:

Reset All Defaults returns the unit to initial factory settings.

Parsing

The Value Line Readers have the built-in ability to Parse the Card data into a couple of different Parsings. A Parsing is an output format that is dependent on the Card data present. Simply define the Parsing conditions and then setup the individual fields that you wish to have output. If the card data does not match any defined parsing conditions the data will be output based on the current settings under F1 through F7, ie the default output mode.

 *Note: A Field Parsing version of the Classic Line Magnetic Stripe Readers is also available upon request from ID Innovations Incorporated.*

Parsing Number: Parsing 1Classic Line: Value Line:

The Value Line Card Readers have the ability to parse multiple card formats. This Combo Box is used to view the settings for each individual parsing. When you change the Parsing number in this Combo Box all other settings for the parsing are changed to reflect the current settings for the selected Parsing.

Parsing RequiredClassic Line: Value Line:


With this option checked the card data will only be transmitted to the computer if it matches one of the parsings. If you want to have the Reader transmit the data with the default output format as defined under F1-F7 be sure to leave this option unchecked.

Data Match On: OffClassic Line: Value Line:

This Combo Box defines the Track number that is to be used to match card data. This option can be set to Off, Track 1, Track 2, Track 3, or "No Match Needed Always Parse". By setting this option to "No Match Needed Always Parse" the parsing will always be active for the current card data. If this option is set to a specific Track then the Parsing will only be active if the Match String is found on the Track and Offset specified.

Match Offset: Start + 0Classic Line: Value Line:

This is used to specify the Offset for the beginning of the Match String. For example setting this option to Start + 0 indicates that the Match String must be found at the first character position of the card data. Likewise setting this option to End - 0 indicates that the Match String should be found at the end of the card data.

 *Note: It is important to note that End - 0 is the LRC character of the specific Track.*

Match String:Classic Line: Value Line:

This is the string that is required to be present at the Match Offset on the Track specified for the Parsing to be activated. In addition to normal text characters you may enter any special characters required by specify the \$ and the Hex value for the character. For a list of all of the HEX values and the keys that they represent, refer to *Appendix-A, Special Characters Table*.

Field Definitions:Classic Line: Value Line:

This List box contains a single line summary of each field defined within the current parsing. Simply click on the field listed and the settings for the field will be displayed to the right of the list box. A check by a field in the list box indicates that the field has been defined.


Track: OffClassic Line: Value Line:

This Combo Box is used to indicate on which Track the field can be found. By setting this option to Off the field is considered not defined for the Parsing.

Starting Offset: Start + 0Classic Line: Value Line:

This setting is used to indicate the start of the field on the Track specified.


Features

 *Note: It is important to note that End – 0 is the LRC character of the specific Track.*

Ending Offset: Start + 0

Classic Line: Value Line:

This setting is used to indicate the end of the field on the Track specified.

 *Note: It is important to note that End – 0 is the LRC character of the specific Track.*

Preamble:

Classic Line: Value Line:

The Preamble is a string that is transmitted just prior to the actual field from the card.

Postamble:

Classic Line: Value Line:

The Postamble is a string that is transmitted just after the actual field from the card.

Exiting Setup Mode and Saving Changes (Classic Line Readers)

Once you have configured the Card Reader, press the ESC key until you see the following prompt:

```
Exit Setup? (Press ENTER): YES
```

Use the LEFT and RIGHT arrow keys to toggle between YES and NO, and ENTER once you make your selection. If you have made any changes to any of the settings, the Card Reader will prompt you to save changes. If you do not save changes, the Card Reader will discard all changes and display the following message:


```
Setup Aborted - Changes Not Saved
```

If you save changes, the Card Reader will display a message indicating that all changes were saved. It is important to note that when changing the **Keyboard Country** the following message may be displayed:

```
Setup Complete - Changes Saved  
Warning! International Chars May Differ For Keyboard Country
```

This warning is displayed when any of the following options contain international characters that may change from **Keyboard Country** to **Keyboard Country**:

- Termination String
- Preambles
- Postambles
- Send 6 Bit Field Separator '^' As
- Send 4 Bit Field Separator '=' As
- Send Track 3 Start Sentinel ';' As
- Send Track 3 Start Sentinel '%' As

 *Note: A faster method of exiting setup mode is to use the ESC key in conjunction with the CTRL and ALT keys. Use CTRL ESC to exit setup mode and save all changes, and ALT ESC to exit setup mode without saving changes.*

Programming Quick Keys (PS2 Style)

In addition to the normal programming options the following Quick Keys have been added to quickly modify the output format and reset the unit to defaults.

Quick Reset - Left-Control, D, Right-Shift, and Backspace

Classic Line: Value Line:

In the event that you need to reset the unit back to factory defaults, the following special Quick Keys can be used. To reset the unit to defaults press and hold the Quick Reset keys. The Card Reader will produce a series of beeps indicating that it has entered programming mode. After a short delay you will hear a second series of beeps that indicate the Card Reader has exited programming mode and changes have been saved.

Transmit Speed Adjustment – Left-Control, 3, Right-Shift, and Enter

Classic Line: Value Line:

This can be used to adjust the data transmission speed from the card reader to the computer. Using this option adjusts the Transmit speed to a 6 on the Classic Line Card Readers or increments the Transmit Speed on the Value Line Readers. For the Value Line readers each use of this Quick Key sequence will slow down the Transmit Speed. Once the Transmit Speed is set to its slowest, another use of this key sequence will set the Transmit Speed to the fastest.

Quick Format

To change the Track Output format, you can simply use one of the two predefined Quick Formatting options. These two options configure the Card Reader for some of the more popular credit card software packages. After pressing the Quick Keys for the formatting option the Card Reader will produce a series of beeps indicating that it has entered programming mode followed by a second series of beeps indicating the Card Reader has exited programming mode and changes have been saved. After the normal programming beeps the Card Reader will issue the appropriate number of beeps for the option selected. The Quick Format keys are as follows:

Option 1 – **Left-Control, 1, Right-Shift, and Enter**

Classic Line: Value Line:

Selecting this option will instruct the Card Reader to output all tracks followed by a single Carriage Return. This mode is the factory default. The following is an example of the output format:

<Track 1 Card Data><Track 2 Card Data><Track 3 Card Data><Carriage Return>

Option 2 – **Left-Control, 2, Right-Shift, and Enter**

Classic Line: Value Line:

Selecting this option will instruct the Card Reader to output a Carriage Return after each Track of data.

<Track 1 Card Data><Carriage Return>
<Track 2 Card Data><Carriage Return>
<Track 3 Card Data><Carriage Return>

OLE POS (OPOS) Toggle– Left-Control, 4, Right-Shift, and Enter

Classic Line: Value Line:

This option is used to Toggle the OLE POS (OPOS) output mode state. If OLE POS (OPOS) mode is currently Off using this key sequence will enable it and likewise if it is enabled it will disable this option.

Good Read Beep Toggle– Left-Control, Caps Lock, Right-Shift, and Enter

Classic Line: Value Line:

This option is used to Toggle the Good Read Beep. If Good Read Beep is on then it will be turned off and likewise if it is off it will be turned on.

Appendices

Appendix-A Special Characters

Special Characters Table

The Special Characters Table is a list of all of the characters that can be entered with the \$ special character designator. The \$ special character can be used in the **No Read String**, **Preambles**, **Postambles** and **Termination String**. Locate the key that you want to embed and enter the value in the Hex column of the table.


Hex	Dec	Description	Hex	Dec	Description	Hex	Dec	Description
\$00	0	NUL (CTRL @)	\$86	134	F7	\$AD	173	Page Down Keypad
\$01	1	SOH (CTRL A)	\$87	135	F8	\$AE	174	Up Arrow Keypad
\$02	2	STX (CTRL B)	\$88	136	F9	\$AF	175	Down Arrow Keypad
\$03	3	ETX (CTRL C)	\$89	137	F10	\$B0	176	Left Arrow Keypad
\$04	4	EOT (CTRL D)	\$8A	138	F11	\$B1	177	Right Arrow Keypad
\$05	5	ENQ (CTRL E)	\$8B	139	F12	\$B2	178	Center Keypad
\$06	6	ACK (CTRL F)	\$8C	140	Left Shift Make	\$B3	179	Insert
\$07	7	BEL (CTRL G)	\$8D	141	Left Shift Break	\$B4	180	Delete
\$08	8	BS (Backspace)	\$8E	142	Right Shift Make	\$B5	181	Home
\$09	9	HT (Tab)	\$8F	143	Right Shift Break	\$B6	182	End
\$0A	10	LF (CTRL J)	\$90	144	Left ALT Make	\$B7	183	Page Up
\$0B	11	VT (CTRL K)	\$91	145	Left ALT Break	\$B8	184	Page Down
\$0C	12	FF (CTRL L)	\$92	146	Right ALT Make	\$B9	185	Up Arrow
\$0D	13	CR (Enter)	\$93	147	Right ALT Break	\$BA	186	Down Arrow
\$0E	14	SO (CTRL N)	\$94	148	Left Control Make	\$BB	187	Left Arrow
\$0F	15	SI (CTRL O)	\$95	149	Left Control Break	\$BC	188	Right Arrow
\$10	16	DLE (CTRL P)	\$96	150	Right Control Make	\$BD	189	
\$11	17	DC1 (CTRL Q)	\$97	151	Right Control Break	\$BE	190	Num Lock
\$12	18	DC2 (CTRL R)	\$98	152	/ Keypad	\$BF	191	Caps Lock
\$13	19	DC3 (CTRL S)	\$99	153	* Keypad	\$C0	192	Scroll Lock
\$14	20	DC4 (CTRL T)	\$9A	154	- Keypad	\$C1	193	Print Screen
\$15	21	NAK (CTRL U)	\$9B	155	+ Keypad	\$C2	194	Pause
\$16	22	SYN (CTRL V)	\$9C	156	. Keypad	\$C3	195	F13
\$17	23	ETB (CTRL W)	\$9D	157	Enter Keypad	\$C4	196	F14
\$18	24	CAN (CTRL X)	\$9E	158	0 Keypad	\$C5	197	F15
\$19	25	EM (CTRL Y)	\$9F	159	1 Keypad	\$C6	198	F16
\$1A	26	SUB (CTRL Z)	\$A0	160	2 Keypad	\$C7	199	F17
\$1B	27	ESC (ESC)	\$A1	161	3 Keypad	\$C8	200	F18
\$1C	28	FS (CTRL \)	\$A2	162	4 Keypad	\$C9	201	F19
\$1D	29	GS (CTRL])	\$A3	163	5 Keypad	\$CA	202	F20
\$1E	30	RS (CTRL ^)	\$A4	164	6 Keypad	\$CB	203	F21
\$1F	31	US (CTRL _)	\$A5	165	7 Keypad	\$CC	204	F22
\$7F	127	DEL (CTRL BkSpc)	\$A6	166	8 Keypad	\$CD	205	F23
\$80	128	F1	\$A7	167	9 Keypad	\$CE	206	F24
\$81	129	F2	\$A8	168	Insert Keypad	\$CF	207	Windows Key
\$82	130	F3	\$A9	169	Delete Keypad	\$D0	208	Left GUI Press
\$83	131	F4	\$AA	170	Home Keypad	\$D1	209	Left GUI Release
\$84	132	F5	\$AB	171	End Keypad	\$D2	210	Right GUI Press
\$85	133	F6	\$AC	172	Page Up Keypad	\$D3	211	Right GUI Release

\$C3-\$D3 (195-211) Available for Value Line Readers Only

ALT Keypad Table

The # designator is used to output any character value between 1 and 255. The following table shows the keypad sequence sent to the computer for the # sequence entered. The actual character displayed will depend upon on the software running and the country setting of your computer. In some cases, no actual character is displayed.

Hex	Keypad	Hex	Keypad	Hex	Keypad	Hex	Keypad	Hex	Keypad	Hex	Keypad	Hex	Keypad
#01	ALT 001	#26	ALT 038	#4B	ALT 075	#70	ALT 112	#95	ALT 149	#BA	ALT 186	#DF	ALT 223
#02	ALT 002	#27	ALT 039	#4C	ALT 076	#71	ALT 113	#96	ALT 150	#BB	ALT 187	#E0	ALT 224
#03	ALT 003	#28	ALT 040	#4D	ALT 077	#72	ALT 114	#97	ALT 151	#BC	ALT 188	#E1	ALT 225
#04	ALT 004	#29	ALT 041	#4E	ALT 078	#73	ALT 115	#98	ALT 152	#BD	ALT 189	#E2	ALT 226
#05	ALT 005	#2A	ALT 042	#4F	ALT 079	#74	ALT 116	#99	ALT 153	#BE	ALT 190	#E3	ALT 227
#06	ALT 006	#2B	ALT 043	#50	ALT 080	#75	ALT 117	#9A	ALT 154	#BF	ALT 191	#E4	ALT 228
#07	ALT 007	#2C	ALT 044	#51	ALT 081	#76	ALT 118	#9B	ALT 155	#C0	ALT 192	#E5	ALT 229
#08	ALT 008	#2D	ALT 045	#52	ALT 082	#77	ALT 119	#9C	ALT 156	#C1	ALT 193	#E6	ALT 230
#09	ALT 009	#2E	ALT 046	#53	ALT 083	#78	ALT 120	#9D	ALT 157	#C2	ALT 194	#E7	ALT 231
#0A	ALT 010	#2F	ALT 047	#54	ALT 084	#79	ALT 121	#9E	ALT 158	#C3	ALT 195	#E8	ALT 232
#0B	ALT 011	#30	ALT 048	#55	ALT 085	#7A	ALT 122	#9F	ALT 159	#C4	ALT 196	#E9	ALT 233
#0C	ALT 012	#31	ALT 049	#56	ALT 086	#7B	ALT 123	#A0	ALT 160	#C5	ALT 197	#EA	ALT 234
#0D	ALT 013	#32	ALT 050	#57	ALT 087	#7C	ALT 124	#A1	ALT 161	#C6	ALT 198	#EB	ALT 235
#0E	ALT 014	#33	ALT 051	#58	ALT 088	#7D	ALT 125	#A2	ALT 162	#C7	ALT 199	#EC	ALT 236
#0F	ALT 015	#34	ALT 052	#59	ALT 089	#7E	ALT 126	#A3	ALT 163	#C8	ALT 200	#ED	ALT 237
#10	ALT 016	#35	ALT 053	#5A	ALT 090	#7F	ALT 127	#A4	ALT 164	#C9	ALT 201	#EE	ALT 238
#11	ALT 017	#36	ALT 054	#5B	ALT 091	#80	ALT 128	#A5	ALT 165	#CA	ALT 202	#EF	ALT 239
#12	ALT 018	#37	ALT 055	#5C	ALT 092	#81	ALT 129	#A6	ALT 166	#CB	ALT 203	#F0	ALT 240
#13	ALT 019	#38	ALT 056	#5D	ALT 093	#82	ALT 130	#A7	ALT 167	#CC	ALT 204	#F1	ALT 241
#14	ALT 020	#39	ALT 057	#5E	ALT 094	#83	ALT 131	#A8	ALT 168	#CD	ALT 205	#F2	ALT 242
#15	ALT 021	#3A	ALT 058	#5F	ALT 095	#84	ALT 132	#A9	ALT 169	#CE	ALT 206	#F3	ALT 243
#16	ALT 022	#3B	ALT 059	#60	ALT 096	#85	ALT 133	#AA	ALT 170	#CF	ALT 207	#F4	ALT 244
#17	ALT 023	#3C	ALT 060	#61	ALT 097	#86	ALT 134	#AB	ALT 171	#D0	ALT 208	#F5	ALT 245
#18	ALT 024	#3D	ALT 061	#62	ALT 098	#87	ALT 135	#AC	ALT 172	#D1	ALT 209	#F6	ALT 246
#19	ALT 025	#3E	ALT 062	#63	ALT 099	#88	ALT 136	#AD	ALT 173	#D2	ALT 210	#F7	ALT 247
#1A	ALT 026	#3F	ALT 063	#64	ALT 100	#89	ALT 137	#AE	ALT 174	#D3	ALT 211	#F8	ALT 248
#1B	ALT 027	#40	ALT 064	#65	ALT 101	#8A	ALT 138	#AF	ALT 175	#D4	ALT 212	#F9	ALT 249
#1C	ALT 028	#41	ALT 065	#66	ALT 102	#8B	ALT 139	#B0	ALT 176	#D5	ALT 213	#FA	ALT 250
#1D	ALT 029	#42	ALT 066	#67	ALT 103	#8C	ALT 140	#B1	ALT 177	#D6	ALT 214	#FB	ALT 251
#1E	ALT 030	#43	ALT 067	#68	ALT 104	#8D	ALT 141	#B2	ALT 178	#D7	ALT 215	#FC	ALT 252
#1F	ALT 031	#44	ALT 068	#69	ALT 105	#8E	ALT 142	#B3	ALT 179	#D8	ALT 216	#FD	ALT 253
#20	ALT 032	#45	ALT 069	#6A	ALT 106	#8F	ALT 143	#B4	ALT 180	#D9	ALT 217	#FE	ALT 254
#21	ALT 033	#46	ALT 070	#6B	ALT 107	#90	ALT 144	#B5	ALT 181	#DA	ALT 218	#FF	ALT 255
#22	ALT 034	#47	ALT 071	#6C	ALT 108	#91	ALT 145	#B6	ALT 182	#DB	ALT 219		
#23	ALT 035	#48	ALT 072	#6D	ALT 109	#92	ALT 146	#B7	ALT 183	#DC	ALT 220		
#24	ALT 036	#49	ALT 073	#6E	ALT 110	#93	ALT 147	#B8	ALT 184	#DD	ALT 221		
#25	ALT 037	#4A	ALT 074	#6F	ALT 111	#94	ALT 148	#B9	ALT 185	#DE	ALT 222		

 Note: The char #00 cannot be output as an ALT keypad character.

Appendix-B Magnetic Stripe Character Sets

These tables show the character sets for 6 bit and 4 bit data. Track 1 is 6 bit, track 2 is 4 bit, and track 3 can be 4 or 6 bit.

6 Bit Character Set

Bits	Character	Bits	Character	Bits	Character	Bits	Character
000000	Space	010000	0	100000	@ ^H	110000	P
000001	! ^H	010001	1	100001	A	110001	Q
000010	" ^H	010010	2	100010	B	110010	R
000011	#	010011	3	100011	C	110011	S
000100	\$	010100	4	100100	D	110100	T
000101	%	010101	5	100101	E	110101	U
000110	& ^H	010110	6	100110	F	110110	V
000111	' ^H	010111	7	100111	G	110111	W
001000	(	011000	8	101000	H	111000	X
001001	)	011001	9	101001	I	111001	Y
001010	* ^H	011010	: ^H	101010	J	111010	Z
001011	+ ^H	011011	; ^H	101011	K	111011	[
001100	, ^H	011100	< ^H	101100	L	111100	\
001101	-	011101	= ^H	101101	M	111101]
001110	.	011110	> ^H	101110	N	111110	^
001111	/	011111	?	101111	O	111111	_ ^H

^HHardware Control Character

4 Bit Character Set

Bits	Character
4321	
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	: ^H
1011	;
1100	< ^H
1101	=
1110	> ^H
1111	?

^HHardware Control Character

Appendix-C Magnetic Stripe Track Formats

Track 1

210 bits per inch, 7 bits per character

Start Sentinel 1 char	Format Code 1 char	Account # 19 digits max	Field Separator 1 char	Country Code 3 digits max	Name 26 char max	Field Separator 1 char	Expiration Date 4 digits	Addtl	End Sentinel 1 char	LRC 1 char
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Country Code is present only if the Account # begins with "59".

Track 2

75 bits per inch, 5 bits per character

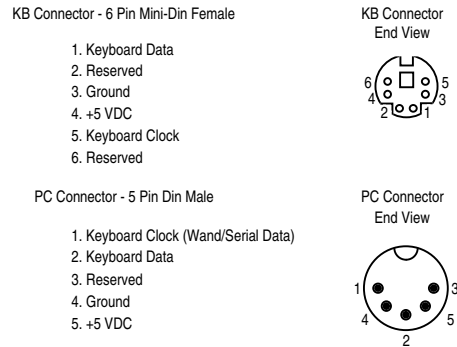
Start Sentinel 1 char	Account # 19 digits max	Field Separator 1 char	Country Code 3 digits max	Expiration Date 4 digits	Addtl	End Sentinel 1 char	LRC 1 char
--------------------------	-------------------------------	---------------------------	------------------------------	-----------------------------	-------	------------------------	---------------

Country Code is present only if the Account # begins with "59".

Appendix-D Magnetic Card Reader Pinouts and Specifications

Pinouts

The following drawing details the pinouts of the keyboard (KB) and the computer (PC) end of the Card Reader cable. Both the keyboard and computer connectors are wired identically to the standard PC keyboard and computer connectors.



Specifications

Electrical

Classic Line

5 VDC $\pm 5\%$ @ 25 milliamp MAX(standby) - 60 milliamp MAX(operating) - 70 milliamp MAX(setup mode)

Value Line

5 VDC $\pm 5\%$ @ 32 milliamp MAX(standby) - 45 milliamp MAX(operating)

Mechanical

Classic and Value Line

1.62"W X 1.08"H X 4"L

6' Y-Cable with 6" adapter for 5 pin DIN and 6 pin Mini-DIN connections

Environmental

0 - 60° C operation temperature

10 - 90% relative humidity (non condensing)

Regulatory

Classic Line

FCC Class A tested and verified

Value Line


FCC Class B tested and verified

CE tested and verified

RoHS compliant

California Propisition 65 compliant

Appendix-E Troubleshooting and Error Beeps

 *Note: If you do not find a solution to your issue and you require further assistance please visit our Website at www.idinnovations.com.*

Troubleshooting

- Problem:** My computer beeps and some of my card data is missing.
Problem: My credit card software says that the card data is invalid.
Problem: It takes several swipes before the credit card readers read the card properly.
Cause: The Card Reader's transmit speed is too fast. If you are using a USB Adaptor (Non-ID Innovations) this is a common problem because USB Adaptors are not prepared to handle the data as fast as the Card Reader can transmit.
Solution: Slow down the Card Reader's transmit speed. Use Windows notepad to repeatedly swipe credit cards to verify that the data is received the same, each time the card is read.
- Problem:** When I press the key sequence to get into configuration my credit card reader flashes the RED LED and beeps 6 times.
Cause: You have a Value Line credit card reader that can only be configured using the Universal Programmers Software.
Solution: Download the free software from our website (www.idinnovations.com) and use it to configure your reader.
- Problem:** The reader does not beep when powered on, and appears dead.
Cause: The Card Reader's decoder chip is no longer functioning.
Solution: Contact technical support for repair.
 - OR -
Cause: The connector from the card reader to the computer has a bent pin.
Solution: Attempt to straighten bent pin – Contact technical support for repair if unable to correct problem.
- Problem:** The card reader does not work with my credit card authorization software.
Cause: Data output format error.
Solution: Change the Termination String to be output after each track of data. You can do this quickly using the Quick Keys sequence: <Left-Control> <2> <Right-Shift> and <Enter> with the PS2 Keyboard Wedge versions of the card reader. If you have a USB Version of the reader you may use the Universal Programmers Software to configure this option under F6.
- Problem:** My card will not read.
Cause: The magnetic read head is dirty.
Solution: Clean the magnetic head. Cleaning cards are available that will allow you to easily clean the magnetic head.
 - OR -
Cause: The Card Reader does not have the tracks enabled to read your card.
Solution: Reconfigure the reader to enable any disabled tracks.
 - OR -
Cause: The Card Reader model that you are using is not the correct model for your card.
Solution: Call for assistance in selecting the appropriate reader for your requirements.
 - OR -
Cause: Your card is not properly oriented in the reader.
Solution: Orient the card with the stripe facing the LED on the reader.
 - OR -
Cause: The data format on your card is not an ANSI/ISO standard.
Solution: Call to see if a firmware update is available to read your card format.
 - OR -
Cause: Your card has a damaged or unreadable stripe.
Solution: Your card needs to be reissued.
 - OR -
Cause: The Card Reader is damaged or is no longer functioning properly.
Solution: Call technical support for assistance.
 - OR -
Cause: Weak signal on card.
Solution: Swipe the card faster.
- Problem:** Some of the characters of my card data are garbled or incorrect.

Appendices

- Cause:** The Card Reader's Keyboard Country setting does not match the computer's keyboard setup.
Solution: Set the Card Reader's Keyboard Country to the same setting as the keyboard on your computer.
- Problem:** My computer gets a keyboard error while booting up.
Cause: The Card Reader is damaged or is no longer functioning.
Solution: Disconnect the reader from your computer and use your keyboard only. Reboot your computer. If your computer still gets a keyboard error, then the problem may not be the reader. Call technical support for assistance.
- Problem:** My card has more data on it than my software is expecting.
Cause: The Card Reader is sending more tracks of data than your software is expecting.
Solution: Reconfigure the reader to either disable or not send unnecessary tracks of data.
- Problem:** My Caps Lock LED on my keyboard flickers when I read a card.
Cause: The Keyboard Country that you are using requires shifting in and out of the Shift Lock mode to send the data properly.
Solution: This is normal operation. You can reduce the flickering and speed the data transmit by sending numerics as keypad numerics, or setting the Keyboard Country to UNIVERSAL mode.
- Problem:** My reader does a strange high-low beep and does not output my card data.
Cause: The Card Reader is configured to send field data and not track data. The reader was unable to find the ACCT # and EXP DATE fields in the data that was read.
Solution: For most credit card applications, configure the Card Reader to require Track 2. In other applications, configure the Card Reader to send TRACK DATA instead of FIELD DATA.
- Problem:** I can't activate the Setup Mode on my PS2 Keyboard Wedge Card Reader.
Cause: The Card Reader is currently configured to lockout the Setup Mode after a card is read.
Solution: Turn the power off and then back on to your computer, and reenter the Setup Mode before reading any cards.
- OR -
Cause: The keyboard that you are using does not work properly when you hold down the Left-Control and Caps Lock keys.
Solution: Use the alternate programming key sequence: Left-Control, F1, Right-Shift, and Backspace.
- Problem:** The Card Reader beeps, but no data is displayed on my computer.
Cause: The Card Reader is not configured to send the tracks that are on your card.
Solution: Reconfigure the Card Reader to send all tracks of data.
- OR -
Cause: The Card Reader is set to strip the same number of characters as there are on your card.
Solution: Reconfigure the Card Reader to not strip characters from the tracks of data.
- OR -
Cause: The Card Reader Output Mode is not set correctly.
Solution: Reconfigure the Card Reader Output Mode for the type of output you are using.
- OR -
Cause: The Card Reader is configured to send the numeric data as KEYPAD NUMERICS, or the Keyboard Country setting is set to UNIVERSAL.
Solution: Reconfigure the Card Reader to Send Numerics As MAIN KEYBOARD KEYS and set the Keyboard Country setting to the country setting of your computer.
- Problem:** My programmable keyboard fails to program when the Card Reader is installed.
Cause: The Card Reader responds to valid keyboard commands from the computer. Most programmable keyboard software programs send characters to the keyboard that are not valid commands.
Solution: Remove the Card Reader from the computer before programming your keyboard.

Hardware Errors

Each time the Card Reader is powered it will go through a system check and verify that all of its hardware is functioning properly. If the Card Reader finds a problem it will sound a series of error beeps and/or LED changes. The following is a list of error beeps and LED changes and their meaning.

Classic Line

SLOW BLINKING ORANGE LED	CPU ERROR
--------------------------	-----------

Appendices

LOW,MED,HIGH BEEP	PROM ERROR
FAST BLINKING ORANGE LED	RAM ERROR
LOW FOLLOWED BY 2 HIGHER BEEPS	EEPROM ERROR

Value Line

FLASHING RED LED, 3 BEEPS	CPU ERROR
FLASHING RED LED, 4 BEEPS	MEMORY ERROR
FLASHING RED LED CONTINUOUSLY	DECODE CIRCUIT ERROR

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