SecureMag
Encrypted MagStripe Reader

USB HID /
USB Keyboard Interface

QuickStart Manual

IDTECH®

Value through Innovation

AGENCY APPROVED

Specifications for subpart B of part 15 of FCC rule for a Class A computing device.

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DESCRIPTION

ID TECH SecureMag reader delivers superior reading performance with the ability to encrypt sensitive card data. The data encryption process prevents card holder information from being accessed when the data is stored or in transit, so the data remains secure from end to end. The reader fully supports TDES and AES data encryption using DUKPT key management method.

The reader is compatible with personal computers or a device with a USB interface. A LED and a beeper on the reader provide status of the reading operations. The reader conforms to the USB HID (Human Interface Device) Class specification Version 1.1. This allows host applications designed for most versions of Windows to easily communicate to the reader using standard Windows API calls that communicate to the reader through the HID driver that comes with Windows. Both USB-HID and USB-Keyboard interface reader make use of the Windows driver and therefore no additional driver installation is required.

SECURITY FEATURES

The reader uses DUKPT key management for encryption process. Key Serial Number (KSN) and Base Derivation Key (BDK) need to be injected before the reader can output encrypted data. The keys are to be injected by certified key injection facility. Default reader properties are configured to have the lowest security level.

There are four security levels available on the reader as specified in the followings:

- Level 0
  Security Level 0 is a special case where all DUKPT keys have been used and is set automatically when it runs out of DUKPT keys. The lifetime of DUKPT keys is 1.5 million. Once the key's end of life time is reached, user should inject DUKPT keys again.

- Level 1
  Reader properties are as configured from factory having the lowest level of default settings. There is no encryption process, no key serial number transmitted with decoded data. The reader has read operation and decoded track data is sent in default format. Encryption type TDES and AES can not be selected under Level 1.

- Level 2
  Key Serial Number and/or Base Derivation Key have been injected. The encryption process is not activated and decoded track data is sent in default format. Key Serial Number and Base Derivation Key can be set by only once after manufacture.

- Level 3
  If the encryption is set to DES or AES at level 2, the security level would advance to level 3 automatically. The output of level 3 will be different from level 1 and level 2. Clear data output can not be selected under Level 3.

- Level 4
  When the reader is at Security Level 4, a correctly executed Authentication Sequence is required before the reader sends out data for a card swipe.

Once the reader has been configured to a higher security, it cannot be reverted back to a lower security level.

HOST CONNECTIONS & DRIVERS

The SecureMag reader is connected to the host computer via a USB input port. Since USB devices are designed to be "plug and play," the computer will search for a Human Interface Device (HID) driver when the SecureMag is first connected. If one cannot be found, the computer will prompt you to make a selection. The Windows CD may be needed to complete the installation.

The magnetic stripe data is transmitted and is available to the host as standard windows API calls through the Microsoft USB HID Driver. Software applications are conveniently developed using this standard Microsoft driver interface. The reader USB operation is full speed and may be too fast for operation with the host. A polling interval value can be changed to slow the data transfer rate. The USB Specification and other information can be downloaded free from the USB organization website (www.usb.org).

If the host computer's application software is expecting the magstripe data in a particular order and format, the reader's output can be configured to output the data stream by re-arranging data blocks, adding terminating characters, and special preamble and/or postamble character strings to the decoded card data.

OPERATION

The SecureMag magnetic stripe reader is easy to operate. Just follow these simple steps:

1.   Make sure the reader is properly connected and is receiving sufficient power.

2.   To read a card, slide the card, in either direction, through the reader slot, with the magnetic stripe facing the magnetic head opposite LED side.

3.   If the track data is decoded successfully, the data will be sent out.

4.   When the card data is sent out from the reader, the LED will go off.

5.   The LED indicator will light up as green to signal a "good read." If a good read is not obtained, the LED indicator will light up as red.

6.   A beep will also sound to indicate a good read on each track. If all three tracks have been read successfully, the reader will beep three times.

7.   The LED will remain green under normal operating conditions.

MAGSWIPE^{TM} CONFIGURATION UTILITY

SecureMag data format can be configured when the encryption feature is off. The magnetically encoded data on the magnetic stripe can be decoded (read) by magnetic card readers. The stripe data has a fixed format defined by the ISO standards. The ISO fixed format is not always convenient or useful for card reading applications. The solution is for the card reader to decode the stripe data and then arrange the data into useful format and content. The reader-formatted data is transmitted from an intelligent communication interface.

The SecureMag is an intelligent magnetic stripe reader, which provides extensive formatting capability. In addition, characters can be added to the formatted data. To support the formatting capability, ID TECH provides an easy to use "MagSwipe Configuration Utility" software application. New file saving capabilities allow configurations to be saved and used again without having to repeat the full configuration process with each reader. The configuration software also provides security settings for the reader.

The utility supports all reader interfaces. The operating systems supported are Windows 98, Windows 2000, and Windows XP.

RUNNING THE UTILITY

The reader is shipped from the factory with the "default configuration" programmed. The default configuration has the least restrictive settings, thus making it able to read all data of a standard encoded magnetic stripe card. See the default settings table for details.

The configuration software can be downloaded from the ID TECH website. From the website, download the Configuration Utility ZIP file into a tempo-rary file folder on your local hard drive. Double click the downloaded self extracting file and follow the screen prompts to expand the Zip file and run the SETUP.EXE application.

The install wizard creates two new folders on the C: Drive. The new folder "IDTECH" and a sub-folder "MagSwipe Configuration Utility" are created in the "Program Files" folder.

At the finish of the installation process, a "MagSwipe Configuration Utility" menu is installed in the programs folder of the Start menu. Connect the reader to the host computer and ensure it is getting power. Point to the "MagSwipe Configuration Utility" menu and click on the IDT icon.

The utility will start at the Home Page with a menu on the left border. Point and click on the menu items as needed. For information on using the utility, point and click the HELP menu selection

SPECIFICATIONS

Power Requirements:	Power supplied by the host computer via the USB port.
Operating Current:	40 mA maximum for decoded magnetic stripe (3 tracks) with USB/HID interface.
Operating Temperature:	32° F to 131° F (0° C to 55° C).
Storage Temperature:	-22° F to 149° F (-30° C to 65° C).
Relative Humidity:	Maximum 95% non-condensing.
Magnetic Head Life:	1,000,000 passes minimum.
Rail and Cover Life:	1,000,000 passes minimum.
Magnetic Stripe Recording Method:	Two-frequency coherent phase (F2F) compatible with ISO 7811, ANSI, and AAMVA
Maximum Number of Tracks:	3 tracks.
Swipe Speed:	3 to 60 inches per second, bidirectional.
Card Thickness:	.015 to .035 inches.
Dimensions:	3.94 inches (length) by 1.38 inches (width) and 1.18 inches (height).
Cable Length:	6-foot straight cable.