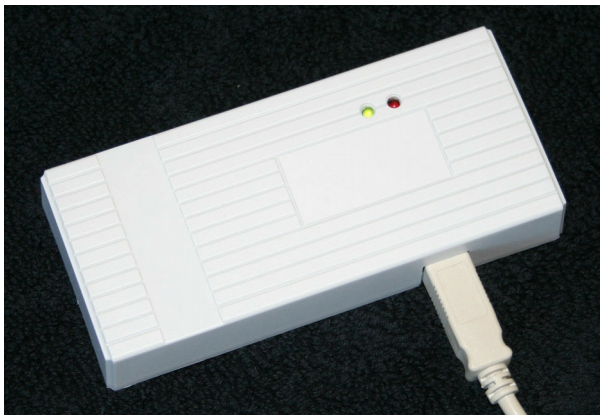
737-52 USB Keyboard Mifare® Sector Reader

Data Sheet

Overview



This mifare® reader connects to a PC via a USB port. It performs a secure read from any sector or page on a mifare® Ultralight, Std 1k/4k, or Plus 2k/4k (in SL1 mode) card and outputs the data in the form of keystrokes which enables the user to capture this into any PC application which accepts keyboard entry.

The reader is configurable to read data from a designated sector using a designated key. As this data cannot be copied from the mifare card it provides a secure card read[1].

Readers are supplied in the factory reset state (red and green leds flash alternately) and are programmed using a configuration card. The configuration card is prepared using the 719-52 Mifare Card programmer and software. The configuration card specifies the sector/page number or MAD address and the relevant key of the sector that contains the application data. It also specifies the reader output format. The reader can be reconfigured at any time using a configuration card.

LEDs and a beeper are used to indicate reader status. The reader has a type B USB connector and is supplied with a USB cable. When plugged into the PC the device enumerates as a Human Interface Device (HID) class device.

Specifications

Power requirements - 4.5V dc (supplied by PC). Current consumption is typically 100 mA.
RF Frequency: 13.56 MHz.
Card types supported: mifare® Ultralight, Std 1k/4k, Plus 2k/4k in SL1 mode., NTAG2XX.
Contactless interface as per specification: ISO/IEC 14443 Type A.
Supports Mifare Application Directory (MAD1/MAD2)[2].
Configurable via config card produced by 719-52 or 727-53 programmer.
Block formats supported: VALUE[2], user-defined ID (wiegand or magstripe), raw.
Output formats: decimal, ASCII, hexadecimal.
Termination options: None, ENTER, TAB.
Operating temperature range: 0ºC - +50ºC.
Weight: 185 grams.
Dimensions: 118 x 54 x 21 mm.

LED and BEEPER operation

The reader indicates that it is factory reset when the red and green LEDs flash alternately. In this state the reader is waiting for a “config card” to tell it which parts of the mifare card to read. When a valid “config card” is presented to the reader a long beep will sound and the green LED will turn on permanently. The red LED will go off.

When a mifare card is read the green LED blinks off and a short beep will sound. The red LED will light if the mifare card cannot be read.

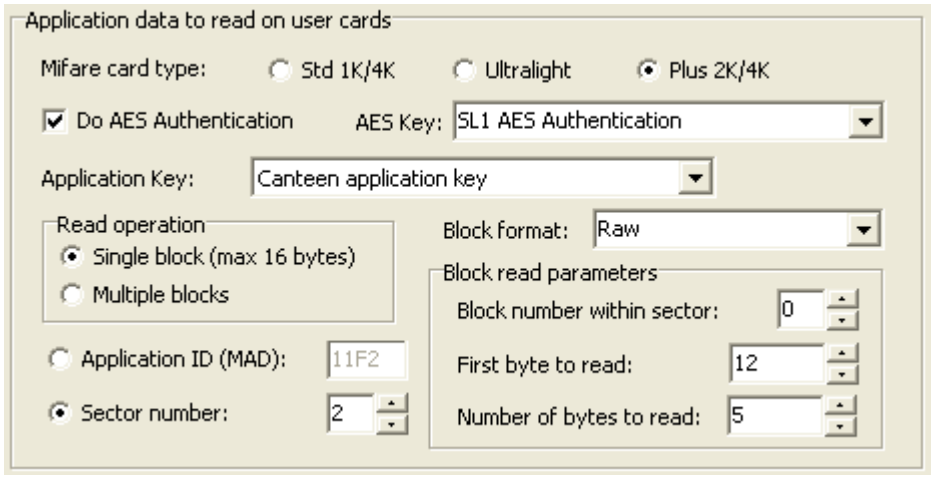
Note 1. Mifare Ultralight cards do not use keys and are therefore not secure.
Note 2: Applies to reading of mifare® Std 1K/4K and Plus 2K/4K cards only.

Card Data Selection

The following parameters determine which part of the card is read by the wedge reader. These parameters are set by the "config card" which can be created using the 719-52 or 727-53 card programmer and software.

1. First sector to read - defined by:
   - Sector number or page number
   - Application ID (for cards using Mifare Application Directory).
2. Number of pages/blocks (16 bytes each) to read:
   - If single block:
     - Block number within sector
     - First byte to read in the block
     - Number of bytes to read in the block
   - If multiple blocks:
     - Number of blocks to read
     - Skip sector trailers (yes/no)
3. Application key (not applicable if reading Mifare Ultralight cards)
4. Block format:
   - Raw
   - Secure ID - wiegand: cards bits match a wiegand format.
   - Secure ID - magstripe: card bits match a magstripe format.
   - VALUE[2]: each block is assumed to contain a 32-bit number as per the Mifare VALUE format.
5. If the card is a Mifare Plus card, an optional AES authentication can be performed to check that the card is a valid card and not a duplicated card.

An example of the 737-xx configuration card programming screen (found in the 719-52 software) is shown below:



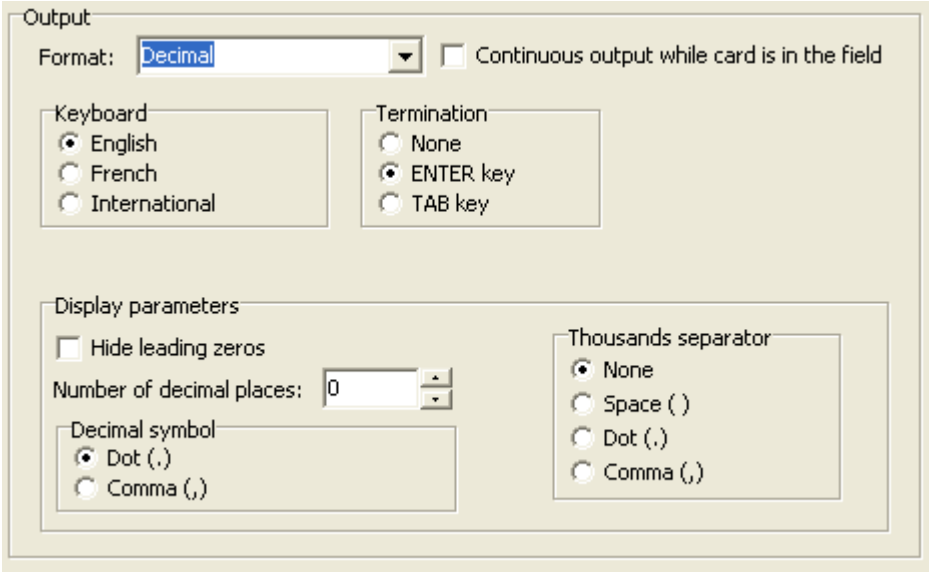
Output Mode Selection

The following parameters determine the format of the data output into the keyboard port:

1. Format:
   - Decimal. The following extra parameters will further define the value output.
     - Number of decimal places
     - Symbol used for decimal point
     - Symbol used for thousands separator
   - ASCII - each byte is assumed to be an ASCII character.
   - Hexadecimal - for each byte two hexadecimal characters are output. Leading zeros may be included or excluded.

2. Keyboard type:
   English
   French
   International
3. Termination key:
   None
   ENTER key
   TAB key
4. Continuous output - if selected the output will repeat as long as the card is in the field.
5. Unique ID output - the UID may be optionally added to the output.

An example of the 737-xx configuration card programming screen is shown below:



Examples

Block of data on the card	Block/Output format	Keystrokes output
D2 02 96 49 2D FD 69 B6 D2 02 96 49 01 FE 01 FE	VALUE, decimal places=2, decimal symbol=dot	12345678.90
D2 02 96 49 2D FD 69 B6 D2 02 96 49 01 FE 01 FE	VALUE, decimal places=5, decimal symbol=dot, thousands separator=space	12 345.67890
4D 69 66 61 72 65 20 72 65 61 64 65 72 2E 2E 2E	Raw/ASCII	Mifare reader...
4D 69 66 61 72 65 20 72 65 61 64 65 72 2E 2E 2E	Raw/hexadecimal	4D696661726520726561646572E2E2E