

IPAD KB PROGRAMMING REFERENCE MANUAL

PART NUMBER 99875488-4

JULY 2011

Confidential

This document contains the proprietary information of MagTek. Its receipt or possession does not convey any rights to reproduce or disclose its contents or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of MagTek is strictly forbidden.

Unpublished – All Rights Reserved

MAGTEK®

REGISTERED TO ISO 9001:2008

1710 Apollo Court

Seal Beach, CA 90740

Phone: (562) 546-6400

FAX: (562) 546-6301

Technical Support: (651) 415-6800

www.magtek.com

Information in this document is subject to change without notice. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of MagTek, Inc.

MagTek is a registered trademark of MagTek, Inc.
IPAD™ is a trademark of MagTek, Inc.

REVISIONS

Rev Number	Date	Notes
1.01	12 July 2010	Initial Release
2.01	9 Dec 2010	Removed reference to Demo Program
3.01	4 May 2011	Updated to include new configuration options in Rev B firmware
4.01	14 Jul 2011	Updated to reflect the CR/LF termination

SOFTWARE LICENSE AGREEMENT

IMPORTANT: YOU SHOULD CAREFULLY READ ALL THE TERMS, CONDITIONS AND RESTRICTIONS OF THIS LICENSE AGREEMENT BEFORE INSTALLING THE SOFTWARE PACKAGE. YOUR INSTALLATION OF THE SOFTWARE PACKAGE PRESUMES YOUR ACCEPTANCE OF THE TERMS, CONDITIONS, AND RESTRICTIONS CONTAINED IN THIS AGREEMENT. IF YOU DO NOT AGREE WITH THESE TERMS, CONDITIONS, AND RESTRICTIONS, PROMPTLY RETURN THE SOFTWARE PACKAGE AND ASSOCIATED DOCUMENTATION TO THE ABOVE ADDRESS, ATTENTION: CUSTOMER SUPPORT.

TERMS, CONDITIONS, AND RESTRICTIONS

MagTek, Incorporated (the "Licensor") owns and has the right to distribute the described software and documentation, collectively referred to as the "Software".

LICENSE: Licensor grants you (the "Licensee") the right to use the Software in conjunction with MagTek products. LICENSEE MAY NOT COPY, MODIFY, OR TRANSFER THE SOFTWARE IN WHOLE OR IN PART EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT. Licensee may not decompile, disassemble, or in any other manner attempt to reverse engineer the Software. Licensee shall not tamper with, bypass, or alter any security features of the software or attempt to do so.

TRANSFER: Licensee may not transfer the Software or license to the Software to another party without the prior written authorization of the Licensor. If Licensee transfers the Software without authorization, all rights granted under this Agreement are automatically terminated.

COPYRIGHT: The Software is copyrighted. Licensee may not copy the Software except for archival purposes or to load for execution purposes. All other copies of the Software are in violation of this Agreement.

TERM: This Agreement is in effect as long as Licensee continues the use of the Software. The Licensor also reserves the right to terminate this Agreement if Licensee fails to comply with any of the terms, conditions, or restrictions contained herein. Should Licensor terminate this Agreement due to Licensee's failure to comply, Licensee agrees to return the Software to Licensor. Receipt of returned Software by the Licensor shall mark the termination.

LIMITED WARRANTY: Licensor warrants to the Licensee that the disk(s) or other media on which the Software is recorded are free from defects in material or workmanship under normal use.

THE SOFTWARE IS PROVIDED AS IS. LICENSOR MAKES NO OTHER WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Because of the diversity of conditions and PC hardware under which the Software may be used, Licensor does not warrant that the Software will meet Licensee specifications or that the operation of the Software will be uninterrupted or free of errors.

IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE, OR INABILITY TO USE, THE SOFTWARE. Licensee's sole remedy in the event of a defect in material or workmanship is expressly limited to replacement of the Software disk(s) if applicable.

GOVERNING LAW: If any provision of this Agreement is found to be unlawful, void, or unenforceable, that provision shall be removed from consideration under this Agreement and will not affect the enforceability of any of the remaining provisions. This Agreement shall be governed by the laws of the State of California and shall inure to the benefit of MagTek, Incorporated, its successors or assigns.

ACKNOWLEDGMENT: LICENSEE ACKNOWLEDGES THAT HE HAS READ THIS AGREEMENT, UNDERSTANDS ALL OF ITS TERMS, CONDITIONS, AND RESTRICTIONS, AND AGREES TO BE BOUND BY THEM. LICENSEE ALSO AGREES THAT THIS AGREEMENT SUPERSEDES ANY AND ALL VERBAL AND WRITTEN COMMUNICATIONS BETWEEN LICENSOR AND LICENSEE OR THEIR ASSIGNS RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT.

QUESTIONS REGARDING THIS AGREEMENT SHOULD BE ADDRESSED IN WRITING TO MAGTEK, INCORPORATED, ATTENTION: CUSTOMER SUPPORT, AT THE ABOVE ADDRESS, OR E-MAILED TO support@magtek.com.

TABLE OF CONTENTS

IPAD KB USB COMMUNICATIONS	1
IPAD KB INPUT DATA FORMAT.....	3
Raw User Data Structure.....	4
INTERFACE SCREENSHOTS	5
CREDIT CARD.....	5
PIN DEBIT	7
HAND ENTER	8
EXAMPLES	13
CREDIT CARD.....	13
PIN DEBIT	13
HAND ENTER.....	13

IPAD KB USB COMMUNICATIONS

This device conforms to the USB specification revision 2.0 (compatible with 1.1). This device also conforms to the Human Interface Device (HID) class specification version 1.1. The IPAD KB communicates with the host as a composite device, which includes a vendor-defined HID device and Key Board Emulation (KBE) device. The HID device is used for factory configuration, key loading, and user configuration. The KBE device is used to input the data to the application. The details about how the data is structured into KBE reports follow later in this document. The latest versions of the Windows operating systems come with a standard USB composite device driver and HID driver.

Applications that communicate with this device can be easily developed. A demonstration program that communicates with this device is available. This demo program can be used to test the device and it can be used as a guide for developing other applications. More details about the demo program follow later in this document.

This is a full speed USB device. This device has some programmable configuration properties stored in non-volatile memory. These properties can be configured at the factory, by the key loader, or by the end user.

This device will go into suspend mode, and will wake up from suspend mode, when directed to do so by the host. This device does not support remote wakeup. This device is powered from the USB bus. The vendor ID (VID) is 0x0801 and the product ID (PID) is 0x3006.

IPAD KB INPUT DATA FORMAT

The IPAD KB sends card and user data block to the application by keyboard emulation. The data block is structured as follows and its content varied with the options.

Data is structured as:

[field #1][...][field #n]

Each field has two elements: field ID and data:

fieldID ~ data|

where ‘|’ is used to separate fields

‘~’ is used to separate the elements within a field

The full message is terminated with carriage return (0x0D) and line feed (0x0A).

Field ID and Data Content

fieldID	Data content	Comment
0	Device model "IPAD100KB"	
1	Transaction type (high 4 bits) and card type (low 4 bits)	Transaction type: 1 – Trans_Credit 2 – Trans_Debit 3 – Trans_Manual 4 – Trans_Swipe 5 – Trans_PinOnly 6 – Trans_Swipe 7 – Trans_PinVerify 8 – Trans_HandEnter Card type: 0 – other 1 – finance 2 – AAMVA 3 – manual
2	Encrypted track 1 data	
3	Encrypted track 2 data	
4	Encrypted track 3 data	
5	Encrypted MP data	
6	track 1 data	Start with "%", end with "?"
7	track 2 data	Start with ",", end with "?"
8	track 3 data	Start with ",", end with "?"
9	Card status data	
10	Track status data	
11	KSN for card data encryption	
12	MP Status data	
13	KSN for PIN	
14	Encrypted PIN block data	
15	KSN for user data encryption	
16	Encrypted SSN data block	SSN is 9 digits
17	Encrypted ZIP data block	ZIP is 5 digits
18	Encrypted BD8/BD6 data block	BD8: mm/dd/yyyy BD6: mm/dd/yy
19	Encrypted DL data block	DL length can be configured, max = 13
20	Encrypted Tip data block	Max data length =2
21	Encrypted Amount data block	Max data length = 7 with two decimals
22	Encrypted Amount Verify data	Data length =1
23	Encrypted CVV data block	Data length =3 or 4
24	Device serial number	
25	MS2.0 format status data if MS2.0 format is configured	See table below

Note: data block for fieldID from 16 to 23 is similar to the ISO format 1 data block (see PIN block format)

MS2.0 format status codes

Value	Comment
0x00	SUCCESS
0x01	N/A
0x02	NO TK2 FS
0x03	BAD TK2 PAN LEN
0x04	NO FIRST TK1 FS
0x05	NO SECOND TK1 FS
0x06	NO TK1 ES
0x07	NO TK2 ES
0x08	TK1 TRAIL TOO SHORT
0x09	TK1 AND TK2 PANS NOT EQUAL
0x0A	BAD TK1 FC
0x0B	DATA NOT ASCII DECIMAL
0x0C	BAD TK2 PAN PREFIX
0x0D	BAD ADDITIONAL DATA
0x0E	TK1 LEN TOO LONG
0x0F	DATA PROHIBITED_CHARS
0x10	TK1 BLANK
0x11	TK1 ERROR
0x12	TK2 BLANK
0x13	TK2 ERROR
0x14	NOTRACKDATA
0x15	TK1_PANTOOSHORT

Raw User Data Structure

The raw user data block is 8 bytes long and structured as follow:

Bits:0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
C	N	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R	P/R

Where:

C: control field

0x0000 -0x0011= PIN format 0-3

0x0100=SSN

0x0101=Zip Code

0x0110=Birth Date

0x0111 =Driver License

0x1000 = Tip

0x1001 = Amount

0x1010 = Amount Verify

0x1011 = CVV

N: data length

P: user data digit from 0x0000 (decimal 0) to 0x1001 (decimal 9)

R: filled random number.

Note: How many nibbles will be filled depending on the entered data length.

INTERFACE SCREENSHOTS

Followings are the screenshots of IPAD KB.

CREDIT CARD



Customer chooses “Credit” as transaction type and waits for the next prompt.



Customer swipes the card and waits for the next prompt.

If the card is not swiped, manual entry is available by pressing “Enter” key, otherwise it will jump to the enter zip code display (if zip code option is selected).

Key enter Account number and press “Enter” key, then waits for the next prompt.



Key enter the Expire Date and press “Enter” key, then waits for the next prompt.



Key enter the CVV/CVC and press “Enter”, then waits for the next prompt.



Key enter 5 digit ZIP code if it is required and press “Enter,” then waits for the next prompt.



IPAD KB displays “Processing” for the specified number of seconds.



IPAD KB displays “Transaction Complete” for the specified number of seconds and then goes back to the idle message.



PIN DEBIT

Customer chooses “PIN Debit” as transaction type and waits for the next prompt.



Customer Swipes the Card and waits for the next prompt.



Customer Enters PIN then “Enter.”



IPAD KB displays “Processing” for the specified number of seconds.



IPAD KB displays “Transaction Complete” for the specified number of seconds and then goes back to the idle message.



HAND ENTER

Choose “Hand Enter” as transaction type and wait for the next prompt. There are several prompts that may be shown.



Enter Social Security Number

A screenshot of a form with a thick black border. Inside, there is a white rectangular area with a thin black border. The text "Enter SSN" is centered at the top, and "888888888" is centered below it.

Customer enters 5 digit ZIP code

A screenshot of a form with a thick black border. Inside, there is a white rectangular area with a thin black border. The text "Enter 5 Digit Zip Code" is centered at the top, and "88888" is centered below it.

Enter Birth date 6 digit format

A screenshot of a form with a thick black border. Inside, there is a white rectangular area with a thin black border. The text "Enter Birthdate (MMDDYY)" is centered at the top, and "888888" is centered below it.

Enter Birth date 8 digit format

A screenshot of a form with a thick black border. Inside, there is a white rectangular area with a thin black border. The text "Enter Birthdate (MMDDYYYY)" is centered at the top, and "88888888" is centered below it.

Enter Drivers License



Enter Driver License

88888888888888

Enter Tip percentage



Enter % Tip

15

Enter Amount



Enter Amount

\$ 12345.78

Customer verifies amount



Amount OK?

Yes No

▼ ▼

Customer Keys the CVV/CVC + Enter and waits for the next prompt



EXAMPLES

Following are the data block examples obtained with card swipe and hand entered the data.

CREDIT CARD

```
0~IPAD100KB|24~434B090E031E1B08|1~11|2~3192DC02DBC07E32D01AE0133268CECC2  
344440558D823BFE20E30DF7082FAD303BE356A8BB9026A59D027B05443C8DB18A6091  
95C168BD F C15E3A6FD26F228D|3~3C302A99857D602CF829C41AE2463155DF531FB5F7E  
16D5FDB9A6C32169B2617DC2A8C00A1A8D04C|4~C8B661670DFCFAA33A89A36A7323  
84FCA91D3648E1FE6498A586957F50B980DB|5~4A33355527713C13966548DDB79FC3D6  
F5A308358A7B4C9DB840C6F25E82A486BD4BC49077001CC1814EA70D16D6288F43194B  
6180B6C083|6~%B54520000000007189^HOGAN/PAUL  
^08040000000000000000000?|7~;5452000000007189=080400000000000000?|8~;51630000700  
00445=000000000000?|9~00000000|10~000000|11~9010010B999999000014|12~00000200|17~  
ACB3F1783DE0561B| 0x0D 0x0A
```

PIN DEBIT

0~IPAD100KB|24~434B090E031E1B08|1~21|2~111AC74472B3DD3FBB689ACD6BCBE4F5
4E3EB985E68088A9610B05BB8F862896E9928BDF34C025F7B043409A7ACE83130AC0DC
A0296D04063A4229EC8EB5F892|3~0AD88D26271377C64419B79F4A4D1E83603E3FB3F4
221C1FE21CCBF4F72AAD2D46652EDC92CB9912|4~D42A51C8A02DAF320248FAB8213A
BFBC38482AAE2AF3C62217027D4FF4A54B22|5~0FC2A2CD18BC882068B76E375DA9C3
593435A97FB0441199F8FC755C6C952953BD2DB79CEAE54C11DEEE1B35B4EB7C828623
0344BE119EF4|6~%B5452000000007189^HOGAN/PAUL
^0804000000000000000000?|7~;5452000000007189=080400000000000000?|8~;51630000700
00445=000000000000?|9~00000000|10~000000|11~9010010B999999000015|12~00000200|13~
0000000000000000000000|14~AE07B8DB3523B3F7| 0x0D 0x0A

HAND ENTER

```
0~IPAD100KB|24~434B090E031E1B08|01~30|15~9010010B999999000016|16~C3E44810BF7
6682F|01~30|15~9010010B999999000016|17~273DBD4AB747CD3C|01~30|15~9010010B999
999000016|18~2124EC1A2C947483|01~30|15~9010010B999999000016|19~6FF91105D6AA6
57F|01~30|15~9010010B999999000016|20~F8F05922BD2B0388|01~30|15~9010010B9999990
00016|21~AAE06ED06F78824E|01~30|15~9010010B999999000016|22~7D66D986759878F5|0
1~30|15~9010010B999999000016|23~B208C2602FB2EC73| 0x0D 0x0A
```