

Lib160 API Guide

Version 1.2

2014-05-07

Revision History

Revision	Date	Description	By
----------	------	-------------	----

Directory

Foreword.....	3
1.HAL api spec.....	3
1.1 Function List.....	3
1.1.0 init device.....	3
1.1.1 close device.....	3
1.1.2 Get the serial number.....	3
1.1.3 Set work mode.....	4
1.1.4 Download 3DES key.....	4
1.2 IC card function.....	4
1.2.1 Init IC card.....	4
1.2.2 close slot.....	4
1.2.3 IC card Write/Read.....	5
1.3 RFID card function.....	6
1.3.1 Find the card and return the card's serial number.....	6
1.3.2 Select RFID card.....	6
1.3.3 RFID card authorization.....	6
1.3.4 Read block data.....	6
1.3.5 write block data.....	7
1.3.6 power off rfid.....	7
1.3.7 read sector data.....	7
1.3.8 write sector data.....	8
1.4 Magnetic Stripe card.....	8
1.4.1 power on.....	8
1.4.2 power off.....	8
1.4.3Reset head.....	9
1.4.4 Detect whether swipe the card.....	9
1.5 Data Structures.....	10
1.5.1 IC Card data struct.....	10
Note.....	10

Foreword

160Lib support PSAM cards, IC cards, contactless IC cards, magnetic stripe cards, providing WINDOWS dynamic library (Lib160.dll, Lib160.lib) when the user development, users should target machine dynamic library files into the appropriate directory.

1. HAL api spec

1.1 Function List

1.1.0 init device

Type	unsigned char __stdcall InitDev (unsigned char comport,long BaudRate)
Description	Set the serial port number, baud rate
Example	ucRet=InitDev(COM1,115200)
Response	0x00-----init ok. 0xff-----init error
Note	USB interface or serial interface to share this function to open the device. When the device is a USB interface, comport need to assign more than 200 number, BaudRate any value. When the device for the serial interface, the actual port and baud rate settings. (Please refer Demo)

1.1.1 close device

Type	void DelDev ()
Description	close com

1.1.2 Get the serial number

Type	void ReadSN(unsigned char *SN)
Description	Get the serial number
Parameters	SN-data buffer

1.1.3 Set work mode

Type	int _stdcall setWorkMode(int mode)
Description	Switching device work mode (encryption devices only support)
Parameters	mode-5: plain text (not encrypted), 6:3DS encrypted communication
Response	0x00-----set success. 0xff-----set failure

1.1.4 Download 3DES key

Type	unsigned char _stdcall set3DESKey(unsigned char* oldKey,unsigned char* newKey)
Description	Update 3DES key (encryption devices only support)
Parameters	oldKey-old 3des key(default is 16 bytes 0x00), newKey:new 3des key
Response	0x00-----set success. 0xff-----set failure

1.2 IC card function

1.2.1 Init IC card

Type	unsigned char IccInit(unsigned char slot, unsigned char *ATR)
Description	Init and reset ic card
Parameters	Slot-0~5 ATR – Answer To Reset Result. (need min 32+1bytes buffer) ATR[0] (ATR length. ATR[1]~ATR[ATR[0]](IC Reset result.
Response	0x00-----init ok. 0x01-----Card out 0xf0-----slot error 0x06-----Communication failure

1.2.2 close slot

Type	void IccClose (unsigned char slot)
Description	close slot and power off ic card
Parameters	slot - 0-4
Response	0x00-----init ok. 0x01-----Card out 0xf0-----slot error 0x06-----Communication failure

1.2.3 IC card Write/Read

Type	unsigned char IccIsoCommand(unsigned char slot,APDU_SEND *ApduSend,APDU_RESP *ApduRecv)
Description	IC card operation function This function supports IC cartoon with interface protocol (T = 0 and T = 1)
Parameters	<p>slot-0~5</p> <p>APDU_SEND struct:</p> <pre>struct{ unsigned char Command[4]; unsigned int Lc; unsigned char DataIn[512]; unsigned int Le; }; Command[] = {CLA, INS, P1, P2}。 Lc = DataIn length。 DataIn = To send a pointer to the data to the IC card。 Le =Length of data expected to return。 Case1: Lc=0; Le=0 Neither data nor transmit data back Case2: Lc=0; Le>0 However, no data is sent to return the desired data, if in practice the number of data expected to return the terminal is unknown, set Le = 256; otherwise determined values. Case3: Lc>0; Le=0 Data is sent without the desired data returns Case4: Lc>0; Le>0 A transmission data and has the desired data returns, if in practice the number of data expected to return the terminal is unknown, set Le = 256; otherwise determined values.</pre> <p>APDU_RESP struct:</p> <pre>struct{ unsigned int LenOut; unsigned char DataOut[512]; unsigned char SWA; unsigned char SWB; }; LenOut = The actual data returned from the IC card length。 DataOut = The data returned from the IC card pointer。 SWA = Status byte 1. SWB = Status byte 2. </pre>
Response	<p>0x00-----Successful implementation;</p> <p>0xff-----Can not communicate with or without power.</p>

1.3 RFID card function

1.3.1 Find the card and return the card's serial number

Type	unsigned char M1Request(unsigned char type,unsigned char *rsp)
Description	Find the card and return the card's serial number
Parameters	Type-0x0A Type A, 0x0B TYPEB Rsp-at least 6 bytes
Response	0x00-----ok

1.3.2 Select RFID card

Type	unsigned char M1Select(unsigned char *SerialNo)
Description	serialNo, 4 bytes
Parameters	SerialNo-serial number of card
Response	0x00-----ok

1.3.3 RFID card authorization

Type	unsigned char M1Authority(unsigned char type,unsigned char block ,unsigned char *pwd)
Parameters	type-password type 0x0A pass A, 0x0B pass B Block- block number Pwd- Pointing to an array of storage card password (6 char array password)
Response	0x00-----ok

1.3.4 Read block data

Type	unsigned char M1ReadBlock(unsigned char block,unsigned char *pck)
Description	read out one block data of card,16 bytes
Parameters	Block-The absolute block number IC card, IC card when you need to read the x-y area's first block, the block number must be an absolute block = x * 4 + y. Pck-Subscript number greater than 16 points of the array, as the return of the card 16 bytes of data cache.
Response	0x00-----ok

1.3.5 write block data

Type	unsigned char M1WriteBlock(unsigned char block,unsigned char *pck)
Description	write data to one block of rfid card,16bytes
Parameters	Block- The absolute block number IC card, IC card when you need to write the first x y block area first, the absolute block number must be $block = x * 4 + y$. Pck-Subscript number greater than 16 points of the array, as the return of the card 16 bytes of data cache
Response	0x00-----ok

1.3.6 power off rfid

Type	unsigned char M500PiccHalt(void)
Description	Let rfid card dormant
Response	0x00-----ok

1.3.7 read sector data

Type	unsigned char M1ReadSec(unsigned char cardtype,unsigned char *pwd,unsigned char keyAB,unsigned char sector,unsigned char *buf,unsigned char mode ,unsigned char *snr,unsigned char timeout)
Description	read whole one sector data
Parameters	Cardtype-card type, 0x0A type A card, 0x31 type B card Pwd:-Pointing to an array of storage card password (6 char array password) keyAB-0x0A pass A, 0x0B pass B Sector-sector number Buf-read buffer, ≥ 42 bytes Mode-Reserved Snr-Card serial number is returned timeout-Timeout
Response	0x08-Look for card error, there is no card in the induction area。 0x10-The card may have been dormant, not selected, but the card has been read out the serial number 0x12-Password authentication failed 0x01-0~2Block did not read out, swipe too fast 0x00-Operation is successful, the read data valid 0xff-Unknown error

1.3.8 write sector data

Type	unsigned char M1WriteSec(unsigned char cardtype,unsigned char *pwd,unsigned char keyAB,unsigned char sector,unsigned char *buf,unsigned char len,unsigned char mode ,unsigned char *snr,unsigned char timeout)
Description	write data to whole one sector
Parameters	Parameters-cardtype: type, 0x0A A card, 0x31 B card Pwd- Pointing to an array of storage card password (6 char array password) keyAB-0x0A: passA, 0x0B passB Sector-sector number Buf-write buffer Len-data length Mode-Reserved Snr- return serial number Timeout- timeout
Response	0x08-Look for card error, there is no card in the induction area。 0x10-The card may have been dormant, not selected, but the card has been read out the serial number 0x12-Password authentication failed 0x01-0~2Block did not read out, swipe too fast 0x00-Operation is successful, the read data valid 0xff-Unknown error

1.4 Magnetic Stripe card

1.4.1 power on

Type	void MagOpen(void)
Description	open magnetic. Read magnetic data using interrupt work, once open magnetic card reader, even without calling Read function, as long as the credit card, the same can read magnetic head data, so no need to use magnetic card reader, magnetic card reader is best to turn off

1.4.2 power off

Type	void MagClose(void)
Description	close magnetic

1.4.3 Reset head

Type	void MagReset(void)
Description	Reset heads, and clears the buffer data card. The head has been on the case of electricity, the function resets the head, remove card data buffer;No power at the head of the case, only clears the buffer data card.To ensure that the data read head is the latest data, the cycle of test card, it is best to call this function once to clear the buffer data card.

1.4.4 Detect whether swipe the card

Type	unsigned char MagSwiped(void)
Description	Detect whether swipe the card Regardless of whether the credit card, the function will return immediately.
Response	0 -yes 0xff -no

1.4.5 read card data

Type	unsigned char MagRead(unsigned char *Track1, unsigned char *Track2,unsigned char *Track3)
Description	1,2,3 track magnetic read data buffer
Parameters	Track1 - Store a pointer to the data track 1 Track2 - Store a pointer to the data track 2 Track3 - Store a pointer to the data track 3
Response	0x00 read Card Error bit0 = 1 Correctly read track 1 data bit1 = 1 Correctly read track 2 data bit2 = 1 Correctly read track3 data bit4 = 1 1Track data with parity error bit5 = 1 2Track data with parity error bit6 = 1 3Track data with parity error

1.5 MEMORY card operate function

1.5.1 MEMORY card read IO status

Type	unsigned char Mc_Io_Read(unsigned char slot)
Description	Selected slot, card read for MEMORY
Parameters	Slot:Need to set up a cartoon channel numbers
Response	0:low 1:high

1.5.2 MEMORY card write IO

Type	void Mc_Io_Write(unsigned char slot,unsigned char mode)
Description	MEMORY card operations IO port, set the high and low
Parameters	Slot:Need to set up a cartoon channel numbers Mode:1respect high,0 respect low
Response	no

Note

The library suitable for our USB interface card, proximity card, IC card reader and other devices, but it does not represent all devices support all the features described in this document. Which part of the function of specific needs, only the reference interface documentation to describe the functional part. If in doubt, and want to get the latest version of the document, please contact us.