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CIM - 8XXX DLL Manual

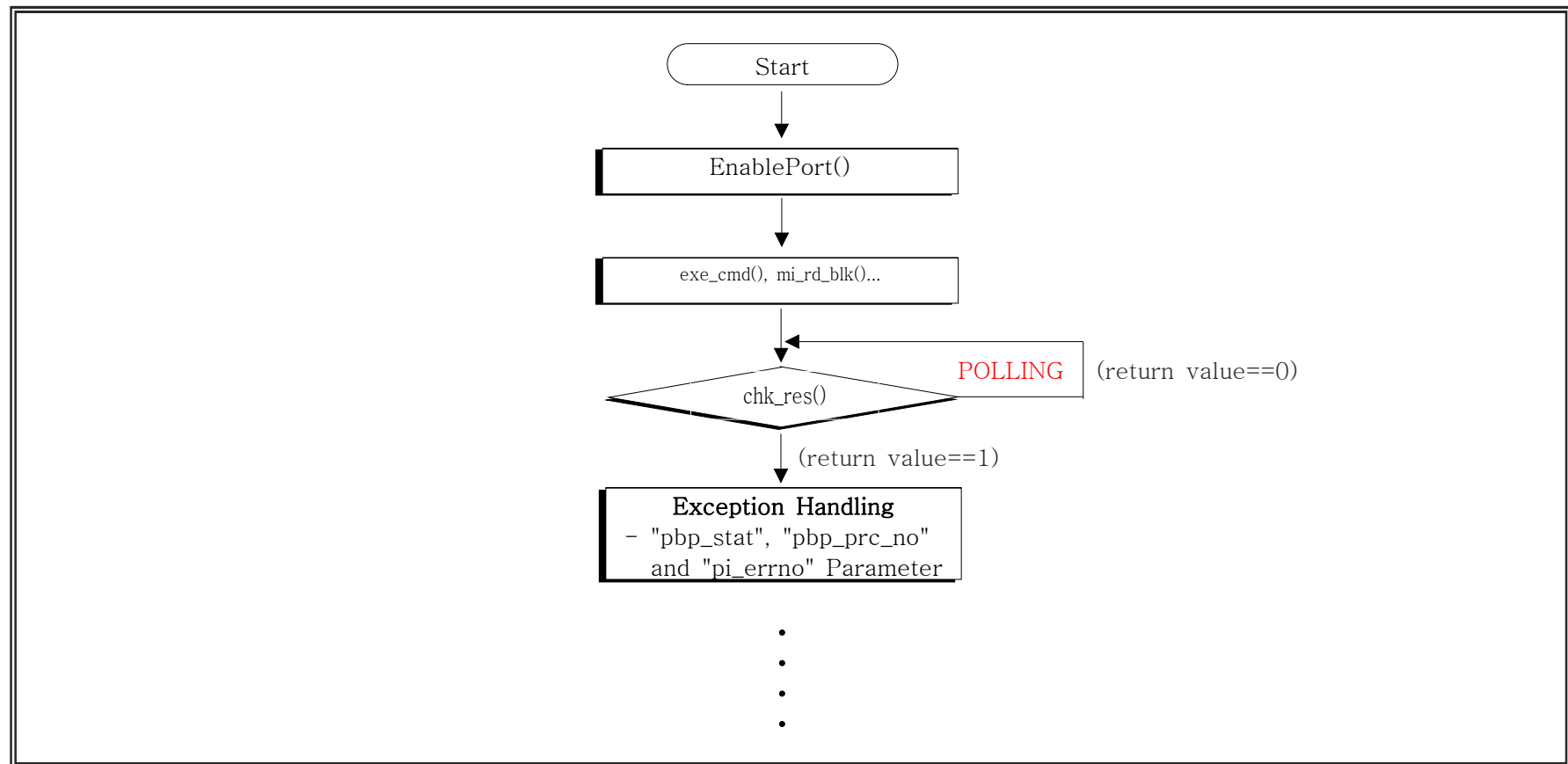
REVISION HISTORY

CHECK	DATE	DESCRIPTION	REV	PAGE
1	2007.06.20	First Edition	1.00	
2	2007.10.16	Collecting function is added.	1.01	36
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\$. "cim_8xxx.dll" Library

- Library for Windows NT4.0/2000/XP.
- Terminal: CIM-8XXX
- Notice: BYTE==unsigned char, UINT==unsigned int, ULONG==unsigned long, NULL==0x00.
- See this document with the SPEC.



- Flow Chart -

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@. EnablePort()

- Set the serial port to communicate with the terminal.

* PROTOTYPE

- BOOL EnablePort(char* port, BYTE size, BYTE parity, BYTE stopbit, DWORD baudrate, BYTE control)

* PARAMETERS(Refer to "struct _DCB" in the MSDN.)

- port : ex) "COM1", "COM2", ...
- size : Number of bits/byte, 4~8.
- parity : 0~4=None,Odd,Even,Mark,Space.
- stopbit : 0,1,2 = 1, 1.5, 2.
- baudrate : Baudrate at which running.
- control : 0,1,2,3 = None, XOn/XOff, RTS/CTS, Both.

* RETURN

- Normal: 1
- Error : 0

* REMARKS

- e.g) EnablePort("COM1", 8, 0, 0, 38400, 0);

=====

@. DisablePort()

- Close the serial port to communicate with the terminal.

* PROTOTYPE

- BOOL DisablePort()

* PARAMETERS : void

* RETURN :

- Normal: 1

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- Error : 0

=====

@. exe_cmd()

- Transmit the command to the terminal.

* PROTOTYPE

- int exe_cmd(BYTE *pbp_cmd, BYTE *pbp_dat, UINT piu_dat_len);

* PARAMETERS : Refer to the spec.

- pbp_cmd: The Pointer of the buffer that 3 Byte instruction(Cm0, Cm1 and Cm2)is filled.

- pbp_dat: The Pointer of the buffer that Data(Data field in the Command structure) of the command is filled.

- piu_dat_len: The length of Data.

* RETURN

- 0 : Parameter Error

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

* REMARKS

- It automatically retry 3 times when communication problems arise.

- This function can execute all command that is written on the Spec.

=====

@. chk_res()

- Check if the execution about the request command is finished. And read the result values about the request command.

* PROTOTYPE

- int chk_res(BYTE *pbp_res, UINT *piu_res_len, BYTE * pbp_prc_no, int *pi_errno);

* PARAMETERS

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- pbp_res: The Pointer of the buffer to take the result value of the request command
(Refer to "DATA" Field of each command in the SPEC).
- res_len: The length of pbp_res
- pbp_prc_no: The variable for saving the sequence number of the request command to process.
(pbp_prc_no variable correspond with each return value of the command.)
- pi_errno
 - . 0 : Normal:
 - . Values except 0: Refer to Error Code Listed below.

* RETURN

- 0: Execution is not finished.
- 1: Execution is finished.

* REMARKS

- If(pi_errno!=0): You must handle that error
- If(pi_errno==2000): Negative Response save Negative Code(2Byte) in pbp_res variable.
And you can find Negative Code in the SPEC.

=====

@. exe_stop()

- Stop the execution of request command.

* PROTOTYPE

- void exe_stop()

* PARAMETERS : void

* RETURN : void

* REMARKS

- If you have to stop the execution because the time is delayed,
call exe_stop() function.

=====

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@. call_src_ver()

- Display source version of the dll program into the Message Box.

* PROTOTYPE

- void call_src_ver()

* PARAMETERS : void

* RETURN : void

=====

@. model()

- Check the model number of the terminal. (CMD: C11)

* PROTOTYPE

- int model();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

* REMARKS

- KYT5XXX series: "pbp_res" parameter of chk_res() function: Model number(1 Byte HEX).
- Others except KYT5XXX series:"pbp_res" parameter of chk_res() function: Model number(30 Byte String).

=====

@. fw_version()

- Check the firmware version. (CMD: C12)

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* PROTOTYPE

- int fw_version();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

* REMARKS

- KYT5XXX series: "pbp_res" parameter of chk_res() function: Firmware version(2 Byte BCD).

- Others except KYT5XXX series:"pbp_res" parameter of chk_res() function: Firmware version(30 Byte String).

=====

@. chk_stack()()

- Check the status of the Cartridge. (CMD: C13)

* PROTOTYPE

- int chk_stack();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. card_position()

- Check the card location. (CMD: C16)

* PROTOTYPE

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- int card_position();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. get_stat()

- Check current Status of the terminal. (CMD: C14)

* PROTOTYPE

- int get_stat();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. get_err()

- It is to check out the errors while Command is being executed. (CMD: C15)

* PROTOTYPE

- int get_err();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

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- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. set_rtc()

- Set or check "RTC IC". (CMD: C21)

* PROTOTYPE

- int set_rtc(BYTE pb_mode, BYTE* pbp_dat);

* PARAMETERS

- pb_mode
 - .pb_mode==0x01: Setting mode.
 - .pb_mode==0x02: Check mode.
- pbp_dat(Refer to the Spec)
 - .If(pb_mode==0x01): "pbp_dat" buffer is composed of 7 Byte BCD.
 - pbp_dat[0]: High-Year(ex: 0x20)
 - pbp_dat[1]: Low-Year(0x00 ~ 0x99)
 - pbp_dat[2]: Month(0x01 ~ 0x12)
 - pbp_dat[3]: Day(0x01 ~ 0x31)
 - pbp_dat[4]: Hour(0x00 ~ 0x23)
 - pbp_dat[5]: Minute(0x00 ~ 0x 59)
 - pbp_dat[6]: Second(0x00 ~ 0x 59)
 - .If(pb_mode==0x02): pbp_dat = NULL.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

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@. rty_cnt()

- Set or check "Retry Count". (CMD: C24)

* PROTOTYPE

- int rty_cnt(BYTE pb_mode, BYTE pb_cnt);

* PARAMETERS

- pb_mode
 - .pb_mode==0x01: Setting mode.
 - .pb_mode==0x02: Check mode.
- pb_cnt
 - .If(pb_mode==0x01)-
 - pb_cnt == 0x00: Don't Retry.
 - pb_cnt == 0x01: 1 Times
 - pb_cnt == 0x02: 2 Times
 - pb_cnt == 0x03: 3 Times
 - .If(pb_mode==0x02): pb_cnt = 0.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. buzz()

- Set the buzzer (CMD: C25)

* PROTOTYPE

- int buzz(BYTE pb_mode, BYTE pb_pm);

* PARAMETERS

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- pb_mode
 - .pb_mode==0x01: Setting mode.
 - .pb_mode==0x02: Check mode.
- pb_pm
 - .If(pb_mode==0x01)-
 - pb_pm == 0x01: Buzz off.
 - pb_pm == 0x02: Buzz on.
 - .If(pb_mode==0x02): pb_pm = 0.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. baudrate()

- Set the baud rate of the terminal. (CMD: C26)

* PROTOTYPE

- int baudrate(BYTE pb_pm);

* PARAMETERS

- pb_pm
 - .1: 9600 Bps.
 - .2: 19200 Bps.
 - .3: RFU.
 - .4: 38400 Bps.(Default)
 - .5: 57600 Bps.

* RETURN

- 0 : Parameter Error.

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- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. card_stk_mov()

- Take a card from cartridge and move it to reader/writer module. (CMD: C31)

* PROTOTYPE

- int card_stk_mov(BYTE pb_stk, BYTE pb_mdl);

* PARAMETERS

- pb_stk: 0 (Constant)
- pb_mdl
 - .pb_mdl==0x01: MSRW module.
 - .pb_mdl==0x02: IC module.
 - .pb_mdl==0x03: RF module.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. card_mov()

- Move a card to reader/writer module. (CMD: C32)

* PROTOTYPE

- int card_mov(BYTE pb_pm);

* PARAMETERS

- pb_pm

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.pb_pm==0x01: MSRW module.

.pb_pm==0x02: IC module.

.pb_pm==0x03: RF module.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. card_eject()

- Eject a card to the front. (CMD: C36, C37)

* PROTOTYPE

- int card_eject(BYTE pb_pm)

* PARAMETERS

-pb_pm

.pb_pm==0: Drop mode.

.pb_pm==1: Hold mode.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. card_capture()

- Takes a card to bin box(Capture). (CMD: C34)

* PROTOTYPE

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- int card_capture();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. lift_up()

- Raise the lift. (CMD: C38)

* PROTOTYPE

- int lift_up()

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. int card_coll()

- Collect the card to the cartridge. (CMD: C39)

* PROTOTYPE

- int card_coll()

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

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- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. int lift_down_for_col()

- Collect the card to the cartridge. (CMD: C44)

* PROTOTYPE

- int lift_down_for_col()

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. int lift_down()

- Collect the card to the cartridge. (CMD: C45)

* PROTOTYPE

- int lift_down()

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

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@. ms_rd()

- Read the selected track of the magnetic card. (CMD: M31, M35)

* PROTOTYPE

- int ms_rd(BYTE pb_tr);

* PARAMETERS

- pb_tr
 - .pb_tr==0x00: All Track.
 - .pb_tr==0x01: Track 1.
 - .pb_tr==0x02: Track 2.
 - .pb_tr==0x03: Track 3.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. ms_wt()

- Write the data at the selected track of the magnetic card . (CMD: M33, M34)

* PROTOTYPE

- int ms_wt(BYTE pb_stk, BYTE pb_tr, BYTE *pbp_dat, UINT piu_dat_len);

* PARAMETERS (Refer to the SPEC: M33, M34)

- pb_stk
 - .pb_stk==0x00: In case that the card is located already in the read/write module.
 - .pb_stk==0x04: From cartridge.
- pb_tr

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.1: Track 1.

.2: Track 2.

.3: Track 3.

- pbp_dat: The Pointer of the buffer that the Data to write is filled.

- piu_dat_len: The length of Data.

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. ms_clean()

- Clean the Magnetic Head mounted inside MSRW Module. (CMD: M51)

* PROTOTYPE

- int ms_clean();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.

- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. ic_reset()

- Reset the IC card and receive the ATR from card. (CMD: I21)

* PROTOTYPE

- int ic_reset();

* PARAMETERS : void

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* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. ic_exe()

- Control the card conforming to the ISO 7816 T=0 / T=1, ISO 7816 -4 standard directly. (CMD: I22)

* PROTOTYPE

- int ic_exe(BYTE *pbp_dat, UINT piu_dat_len);

* PARAMETERS

- pbp_dat: The Pointer of the buffer that Data(Data field in the Command structure) of the command is filled.
- piu_dat_len: The length of Data.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. tm_rst()

- Reset the terminal with software. (CMD: C42)

* PROTOTYPE

- int tm_rst();

* PARAMETERS: void

* RETURN

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- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_rd_blk()

- Read RF card data and Secret Key in block range (CMD: R31)

* PROTOTYPE

- int mi_rd_blk(BYTE pb_sct, BYTE pb_blk);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pb_blk: Block(0x00~0x03).

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_wt_blk()

- Write RF card data in block range. (CMD: R32)

* PROTOTYPE

- int mi_wt_blk(BYTE pb_sct, BYTE pb_blk, BYTE *pbp_dat);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pb_blk: Block(0x00~0x03).
- pbp_dat: The Pointer of the buffer that the Data to write is filled.(16BYTE)

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* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_rd_sct()

- Read RF card data in sector range. (CMD: R36)

* PROTOTYPE

- int mi_rd_sct(BYTE pb_sct);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_wt_sct()

- Write RF card data in sector range(except Sector 0). (CMD: R37)

* PROTOTYPE

- int mi_wt_sct(BYTE pb_sct, BYTE *pbp_dat);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pbp_dat: The Pointer of the buffer that "Write Data" is filled.(51BYTE, Refer to SPEC)

* RETURN

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- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

* REMARKS

- e.g)

Block 0- 303132333435363738393A3B3C3D3E3F

Block 1- 404142434445464748494A4B4C4D4E4F

Block 2- 505152535455565758595A5B5C5D5E5F

pbp_dat- 00303132333435363738393A3B3C3D3E3F01404142434445464748494A4B4C4D4E4F
02505152535455565758595A5B5C5D5E5F

=====

@. mi_bal_inc()

- Increment the balance of card to the specified amount. (CMD: R41)

* PROTOTYPE

- int mi_bal_inc(BYTE pb_sct, BYTE pb_blk, ULONG plu_value);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pb_blk: Block(0x00~0x03).
- plu_value: Value.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

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@. mi_bal_dec()

- Decrement the balance of the card to the specified amount. (CMD: R42)

* PROTOTYPE

- int mi_bal_dec(BYTE pb_sct, BYTE pb_blk, ULONG plu_value);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pb_blk: Block(0x00~0x03).
- plu_value: Value.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_cng_tm_key()

- Change 'Secret Key' of the terminal into new key. (CMD: R51)

* PROTOTYPE

- int mi_cng_tm_key(BYTE pb_sct, BYTE *pbp_dat);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pbp_dat: The Pointer of the buffer that "KEY A and KEY B" is filled.(12 BYTE, Refer to SPEC)

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

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@. mi_cng_all_tm_key()

- Change 'Secret Key' to all the same key value. (CMD: R52)

* PROTOTYPE

- int mi_cng_all_tm_key(BYTE *pbp_dat);

* PARAMETERS

- pbp_dat: The Pointer of the buffer that "KEY A and KEY B" is filled.(12 BYTE, Refer to SPEC)

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_sel_key()

- Choose the key type between KEY A and KEY B. (CMD: R53)

* PROTOTYPE

- int mi_sel_key(BYTE pb_index);

* PARAMETERS

- pb_index
 - .1: KEY A.(Default)
 - .2: KEY B.

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

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@. mi_cng_card_key()

- Change RF card 'Secret Key' to other key. (CMD: R54)

* PROTOTYPE

- int mi_cng_card_key(BYTE pb_sct, BYTE pb_access, BYTE *pbp_dat);

* PARAMETERS

- pb_sct: Sector(0x00~0x0F).
- pb_access
 - .0: Access Condition does not exist in "pbp_dat" buffer.
 - .1: There is Access Condition in "pbp_dat" buffer.
- pbp_dat: The Pointer of the buffer that "KEY A,B and Access Condition" is filled.(16 BYTE, Refer to SPEC)

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

=====

@. mi_det()

- Detect the RF card in antenna area (and read Card Serial Number:4 BYTE HEX) (CMD: R61)

* PROTOTYPE

- int mi_det();

* PARAMETERS : void

* RETURN

- 0 : Parameter Error.
- 1 ~ 255: The Sequence number of that request(It is utilized to confirm whether it is the result of your request when you read the result.)

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\$. Error Code List

- 1 : No ACK Error
- 2 : TIMEOUT Error
- 3 : NAK Error
- 2000 : Negative Error
(Negative Response save the negative code(2Byte) into pbp_res variable in chk_res() function.
And you can find Negative Code in the SPEC)
- 102 : Compulsion termination Error
- 106 : Packet Frame Error
- 107 : BCC Error
- 108 : Transmission Error

\$. Implement the Manager Program.

1. Open and set the serial port with EnablePort() function in“cim_8xxx.dll”.
2. Call exe_cmd(), ms_rd(),... function according to the deed to do.

The returned value(pbp_prc_no) in an each function is the sequence number of request

command. It is utilized to confirm whether it is the result of your request when you read

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the result of the request command.

3. For confirm the result of the request. First, check if the execution is finished with

chk_res() function. If the execution is finished, handle the result values.

4. If you must stop the execution because the time is delayed. Call exe_stop() function.

5. Call DisablePort() function in order to close the serial port.

6. To changes the setup of the serial port, call EnablePort() function again.

But you must call DisablePort() function in order to close the existing serial port before calling

EnablePort() function.