

USB Card Reader (V3TU Series)

Windows Library

Specification

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Revision	Version	Date	Description	PREPD	APPD
	Rev. 1.0	10/04/1999	Established newly.	Furuya	Okamoto
	Rev. 1.1	11/15/1999	Data type of return value for TcrOpenReader function changed to int (0 -).	Furuya	Okamoto
	Rev. 1.2	11/23/1999	Other Error added to read status. Timeout described additionally.	Furuya Furuya	Okamoto Okamoto
	Rev. 1.3	01/11/2000	Device ID command added.	Furuya	Okamoto

1.Overview

The present specification applies to the Windows libraries for controlling the card readers (V3TU Series) connected through the Universal Serial Bus (USB).

2.Specifications

1) System requirements

A personal computer equipped with a USB interface and running the Japanese version of Microsoft Windows 98.

2) Communications specifications

- (1) USB specification: Ver. 1.0
- (2) Transfer method: Interrupt transfer
- (3) Transfer rate: Low speed
- (4) Timeout: If there is not response to a command or a negative acknowledge (NAK) is repeated for 10 seconds.

3) Execute form

Windows 32-bit DLL

4) Other

- (1) This DLL does not affect the settings in the Keyboard Emulation mode of the card reader.
- (2) ID numbers are controlled by applications and do not affect the operation of this library.

3.Function list

No.	Function name	Description
1	TcrOpenReader	Establishes I/O connection with V3TU card reader.
2	TcrGetProperty	Gets information about V3TU card reader.
3	TcrEnableRead	Enables/disables V3TU card reader.
4	TcrGetCardData	Gets card data from V3TU card reader.
5	TcrControlLED	Controls LEDs of V3TU card reader.
6	TcrControlBZ	Controls buzzer of V3TU card reader.
7	TcrCloseReader	Releases I/O connection with V3TU card reader.
8	TcrSetID	Assigns ID number to V3TU card reader.
9	TcrGetID	Gets ID number of V3TU card reader.

4. Function details

(1) Opening a card reader (TcrOpenReader)

Description: Establishes an I/O connection with a V3TU card reader.

Format: int FAR PASCAL _export TcrOpenReader(int p1)
 int p1 -- Number of the card reader to open (0 to 2).

Return value: 0 or larger -- Handle to the card reader
 -1 -- Failure

(2) Getting information about a card reader (TcrGetProperty)

Description: Gets information about a V3TU card reader.

Format: int FAR PASCAL _export TcrGetProperty(HANDLE p1, PTCR_INFO p2)

```

HANDLE p1      -- Handle to the card reader
PTCR_INFO P2  -- Address of the card reader's information structure

#define PN_MAX  65
#define HV_MAX  17
#define SV_MAX  17
typedef struct _TCR_INFO {
    UCHAR    ProductName[PN_MAX]; // Buffer address of the character string
                                           // that represents the product model
    UCHAR    HVersion[HV_MAX];    // Buffer address of the character string
                                           // that represents the hardware version
    UCHAR    SVersion[SV_MAX];    // Buffer address of the character string
                                           // that represents the software version
} TCR_INFO, *PTCR_INFO;
  
```

Return value: 0 -- Success
 Other than 0 -- Failure

(3) Enabling/disabling a card reader (TcrEnableRead)

Description: Enables/disables a card reader.

Format: int FAR PASCAL _export TcrEnableRead(HANDLE p1, BOOL p2)

```

HANDLE p1 -- Handle to the card reader
BOOL p2  -- TRUE    Enable read operations
          -- FALSE  Disable read operations
  
```

Return value: 0 -- Success
 Other than 0 -- Failure

(4) Getting card data (TcrGetCardData)

Description: Gets card data from a card reader.

Format: int FAR PASCAL _export TcrGetCardData(HANDLE p1, PTCR_CARD p2)

```

HANDLE p1      -- Handle to the card reader
PTCR_CARD P2  -- Address of the card reader's information structure

#define JIS2_MAX  69
#define ISO1_MAX  76
#define ISO2_MAX  37
#define ISO3_MAX  104
typedef struct _TCR_CARD {
    UCHAR    JIS2Status;           // Status of the JIS2 track
    UCHAR    JIS2Data[JIS2_MAX];  // Buffer address of JIS2 track data
    UCHAR    ISO1Status;          // Status of the ISO1 track
    UCHAR    ISO1Data[ISO1_MAX];  // Buffer address of ISO1 track data
    UCHAR    ISO2Status;          // Status of the ISO2 track
    UCHAR    ISO2Data[ISO2_MAX];  // Buffer address of ISO2 track data
    UCHAR    ISO3Status;          // Status of the ISO3 track
    UCHAR    ISO3Data[ISO3_MAX];  // Buffer address of ISO3 track data
} TCR_CARD, *PTCR_CARD;

```

Status	0xFF	Not read (The track is not set to be read).
	0x00 - 0x7F	Byte count of a successful read.
	0x81	STX error. The most significant bit is set in case of an STX error. There may be combinations of error types.
	0x82	Parity error.
	0x84	ETX error.
	0x88	LRC error.
	0x90	Overrun error. Card was slid too fast, for example.
	0xA0	asg error.
	0xC0	Other error.

Return value: 0 -- No data (No card has been manipulated)
 1 -- Data exists
 -1 -- Failure

(5) Controlling the LEDs of a card reader (TcrControlLED)

Description: Controls the LEDs of a V3TU card reader.

Format: int FAR PASCAL _export TcrControlLED(HANDLE p1, int p2)

HANDLE p1 -- Handle to the card reader
 int p2 -- Status of the LEDs. Each of the LEDs is activated when the corresponding bit is set to 1, as shown in the table below.

LED	bit-3	bit-2	bit-1	bit-0
PWR (GREEN)	-	-	-	ON
BUSY (RED)	-	-	ON	-
OK (GREEN)	-	ON	-	-
ERR (RED)	ON	-	-	-

Note: When indicating BUSY status, it is recommended to turn on both BUSY and PWR lamps.

Return value: 0 -- Success
 Other than 0 -- Failure

(6) Controlling the buzzer of a card reader (TcrControlBZ)

Description: Controls the buzzer of a V3TU card reader.

Format: int FAR PASCAL _export TcrControlBZ(HANDLE p1, int p2)

HANDLE p1 -- Handle to the card reader
 int p2 -- Status of the buzzer
 0 OFF
 1 ON
 2 Special pattern
 3 Pattern for OK
 4 Pattern for ERR

Return value: 0 -- Success
 Other than 0 -- Failure

(7) Closing a card reader (TcrCloseReader)

Description: Releases the I/O connection with a V3TU card reader.

Format: int FAR PASCAL _export TcrCloseReader(HANDLE p1)

HANDLE p1 -- Handle to the card reader.

Return value: 0 -- Success
 Other than 0 -- Failure

(8) Assigning an ID number to a card reader (TcrSetID)

Description: Assigns an ID number to a V3TU card reader.

Format: int FAR PASCAL _export TcrSetID(HANDLE p1, int p2)

HANDLE p1 -- Handle to the card reader.
int p2 -- Desired ID number.

Return value: 0 -- Success
Other than 0 -- Failure

(9) Getting an ID number of a card reader (TcrGetID)

Description: Gets an ID number of a V3TU card reader.

Format: int FAR PASCAL _export TcrGetID(HANDLE p1)

HANDLE p1 -- Handle to the card reader.

Return value: 0 or larger -- ID number of the card reader
-1 -- Failure