

# ZS-6228-8R Series USB-Relay Adapter

## User's Manual



Zip code: 183-0027

2-13-37, Honmachi, Fuchu, Tokyo, Japan

TEL: +81-(0)42-368-2126

FAX: +81-(0)42-364-0067

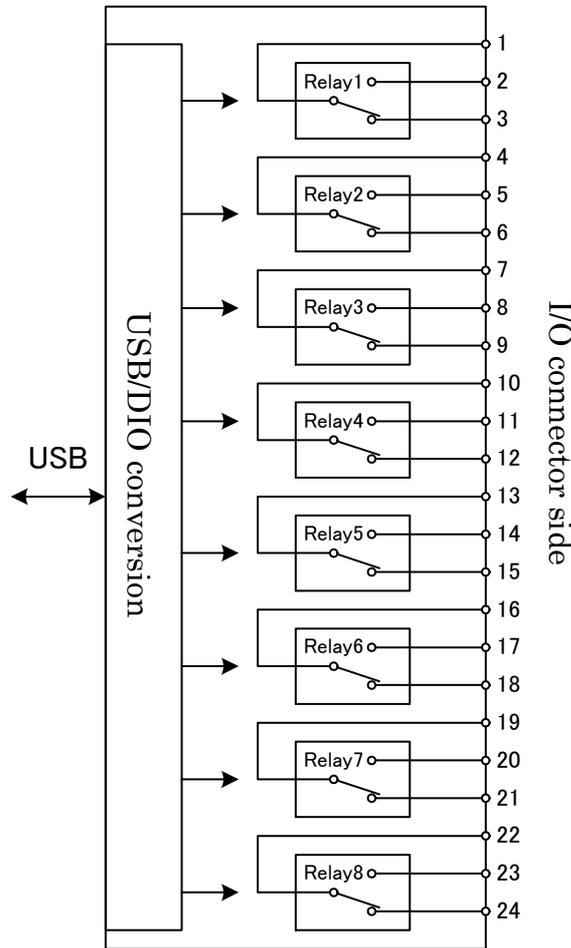
URL <http://www.zenisu.co.jp/>

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# 1.Outline

ZS-6228-8R is a unit with 8 relays built-in. it is possible to execute relay output, insulation between circuits, level conversion, by connecting to a personal computer and operating the relays.



# 2.Specification

## 2.1.Operation environment

- PC : IBM PC/AT compatible machine (USB port required)
- OS : Microsoft Windows 2000 , XP , Vista , 7 , 8  
: Linux  
: Mac

Note) Linux and Mac do not check the operation.

## 2.2.USB

Compliant with USB2.0 standard

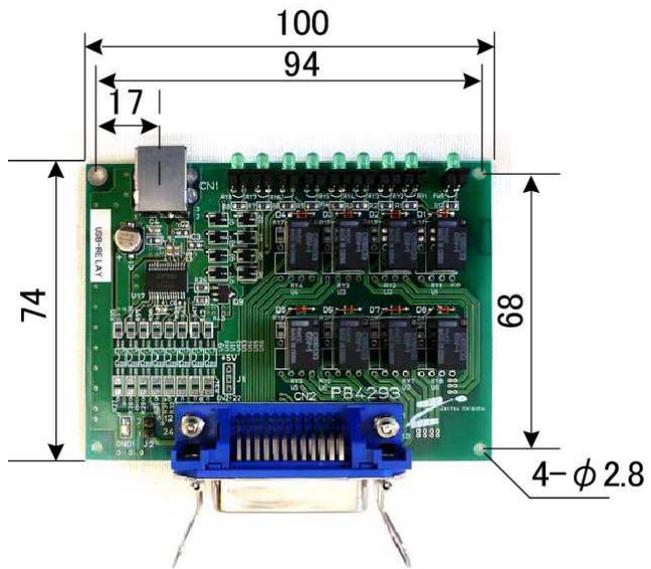
### 2.3.Product specification

Model	ZS-6228P-8R	ZS-6228S-8R
Feature	Printed circuit boarded type	Small case built-in type
Data connector	24P Amphenol connector	24P Amphenol connector
Power supply	USB bus power DC4.75V to 5.25V 350mA or less	USB bus power DC4.75V to 5.25V 350mA or less
Environment	Temperature 0°C to 50°C Humidity 85% or less	Temperature 0°C to 50°C Humidity 85% or less
Storage Temp	-20°C to 80°C	-20°C to 80°C
Size	100 × 74 × 20H	150 × 100 × 30H
Accessory	Data connector 57-30240	Data connector 57-30240

### 2.4.Relay

Relay	G5V-1
ON resistance	100mΩ or less
Switching part rated load	AC125V 0.5A, DC24V 1A
Operation time	5ms or less
Recovery time	5ms or less

## 2.5.Appearance



## 3.Install

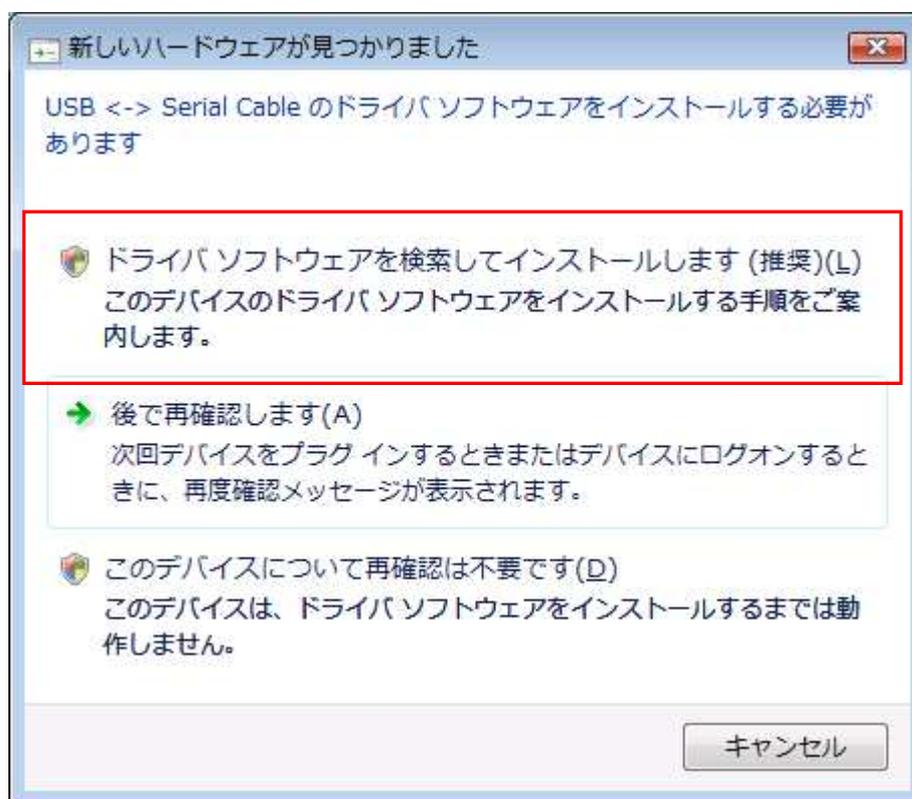
### 3.1.Windows Vista / 7

In order to use this product, it is necessary to install hardware and device drivers.

- 1 Turn on the power to the PC and start Windows.
- 2 Connect the PC and this product with USB cable.
- 3 Install the device driver.
- 4 Installation is completed.

The “Device driver installation method” is explained as below. The display of sentences may differ depending on personal computer, but it is basically the same.

When connecting this product to the computer at first, the following screen will be displayed.

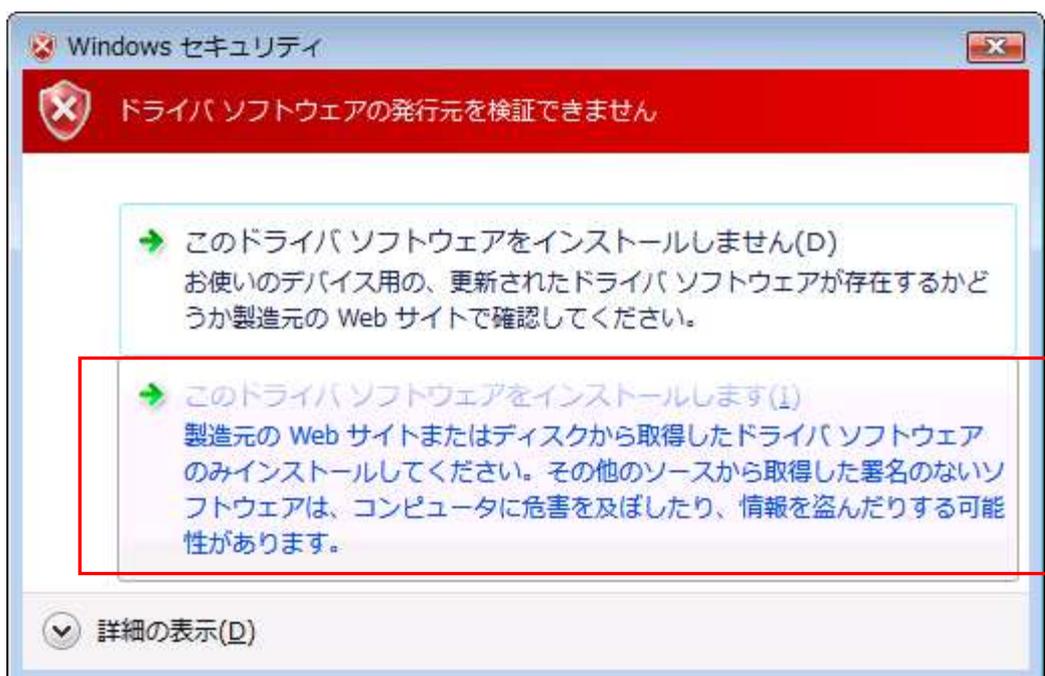


Click “Search and install driver software”.

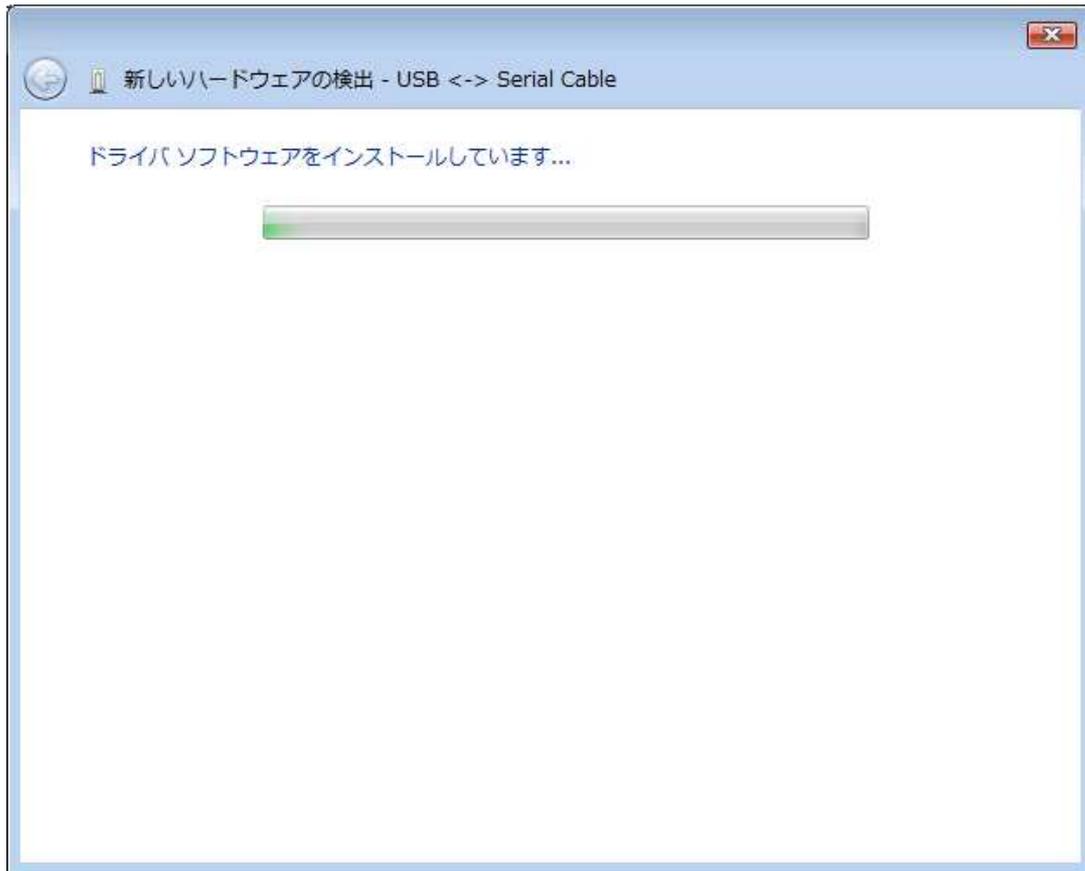
When the following indication displayed, insert the attached CD as instructed. The driver may be automatically installed without displaying the following screen when the personal computer is connected to the internet.



It will be displayed “it can not verify the publisher of the driver software”, but there is no problem. Click “Install this driver software”.



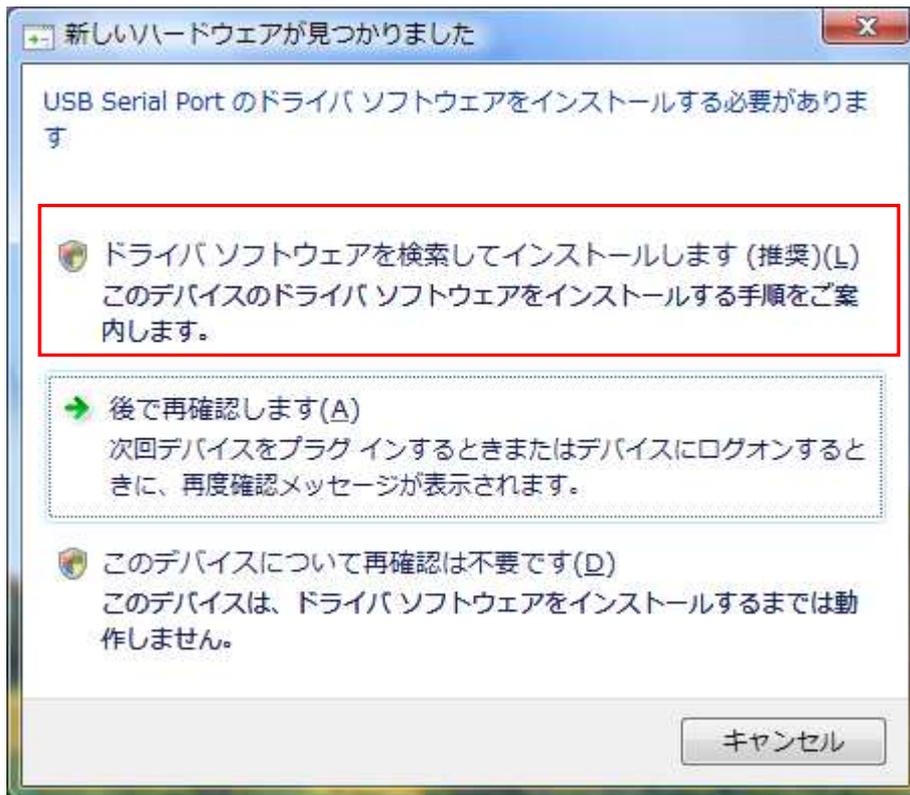
The following screen will be displayed.



The following screen will be displayed when installation of device driver is completed. Click “Close” button.



The following screen will be displayed.

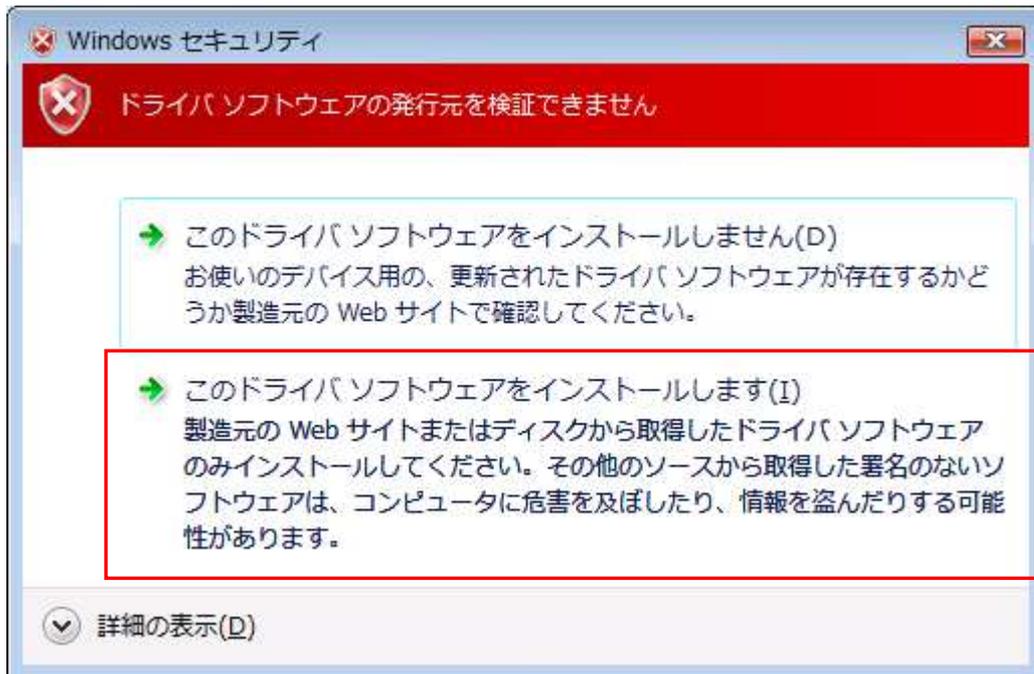


Click “Search and install driver software”.

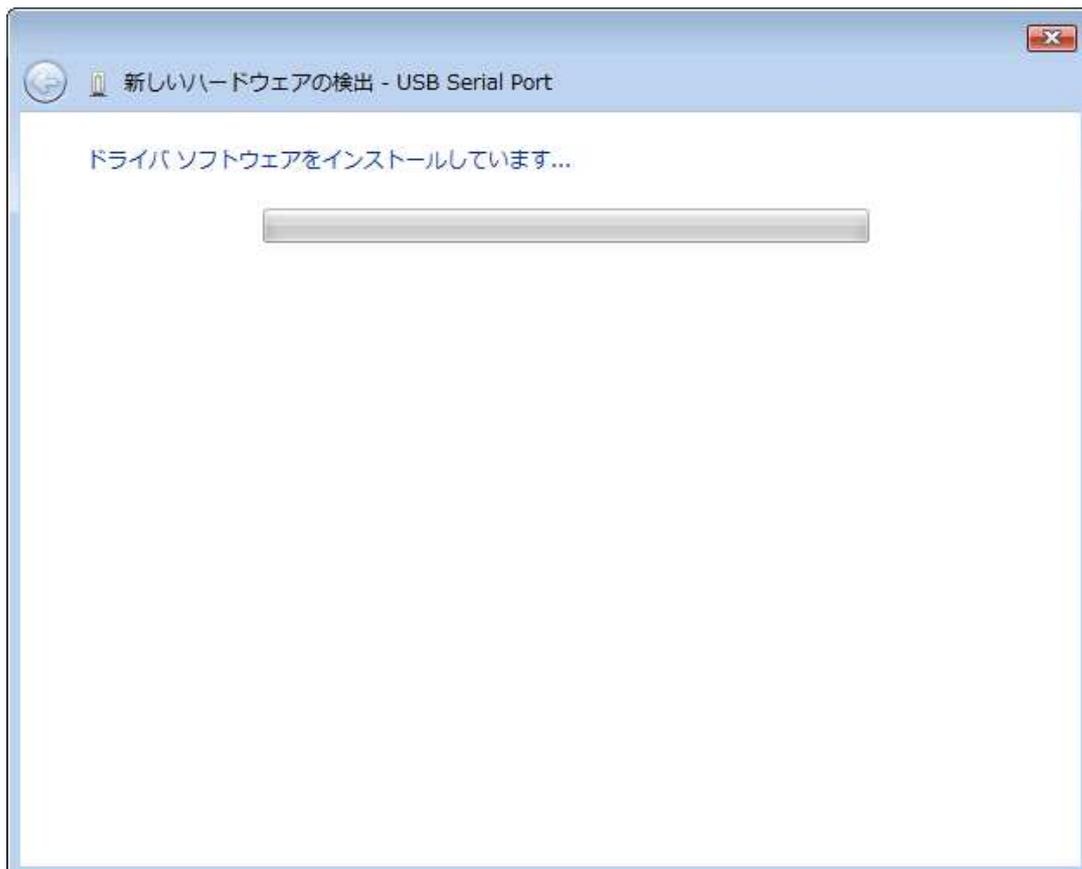
The following screen will be displayed. Click “NEXT” button.



There is no problem. Click “Install driver software”.



The following screen will be displayed.



Installation of driver is completed. Click “Close” button.



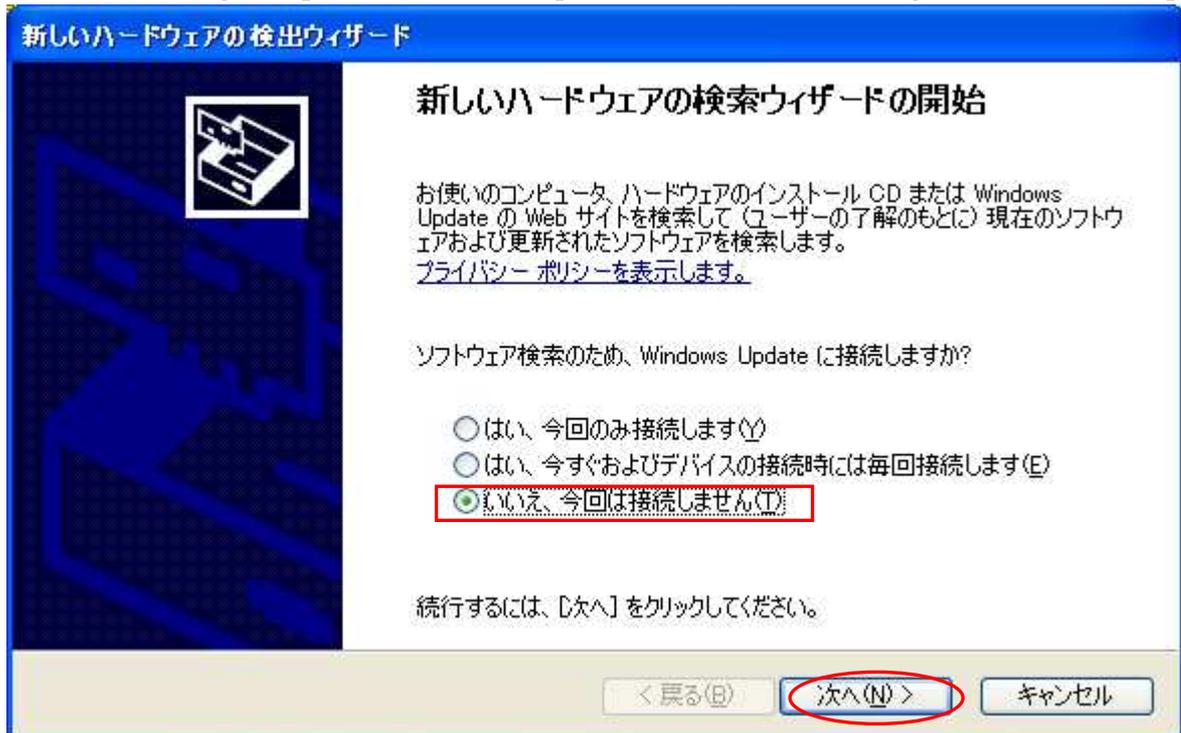
### 3.2.Windows XP/2000

In order to use this product, it is necessary to install hardware and device drivers.

- 1 Turn on the power to the PC and start Windows.
- 2 Connect the PC and this product with USB cable.
- 3 Install the device driver.
- 4 Installation is completed.

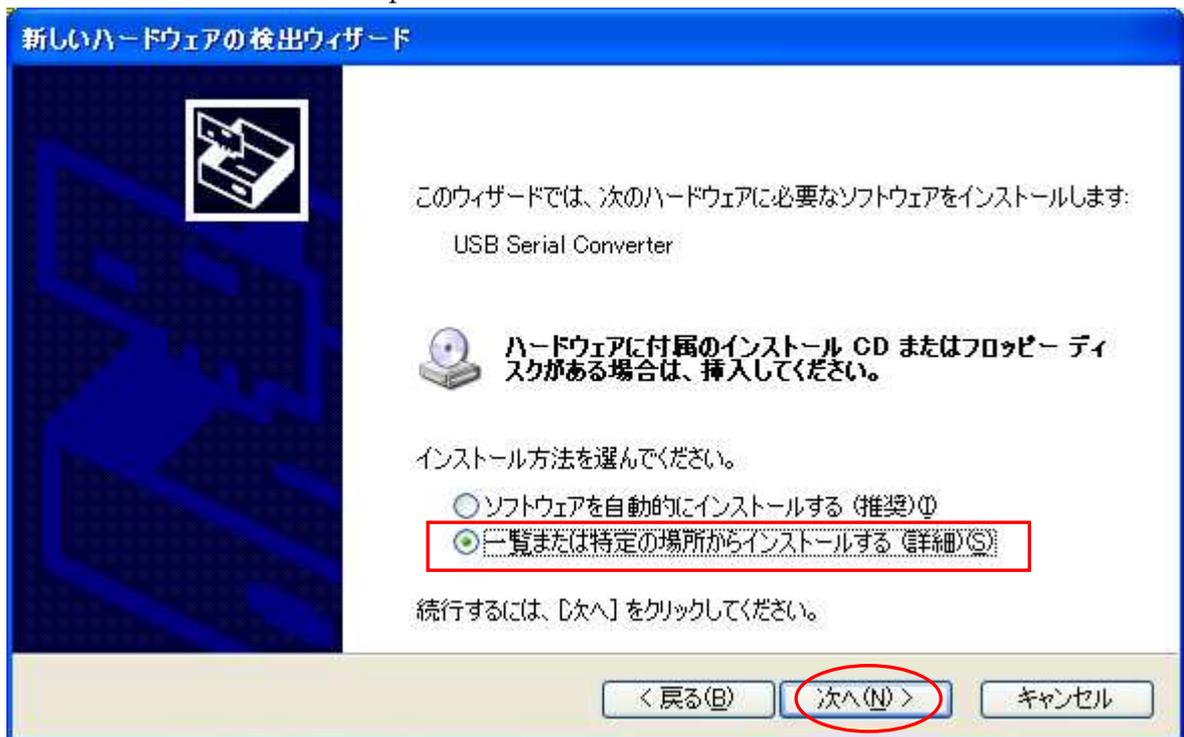
The “Device driver installation method” is explained as below. The display of sentences may differ depending on personal computer, but it is basically the same.

When connecting this product to the computer at first, the following screen will be displayed.

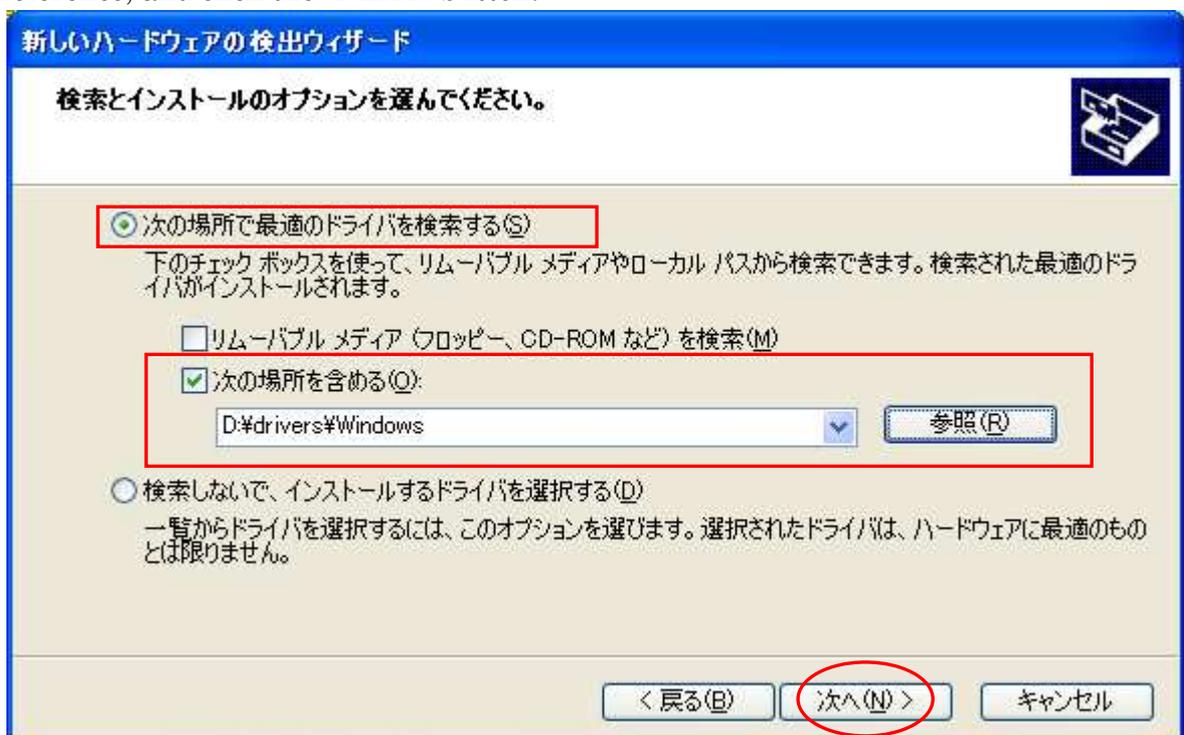


Select “No, it does not connect this time(T)” and click the “NEXT” button.

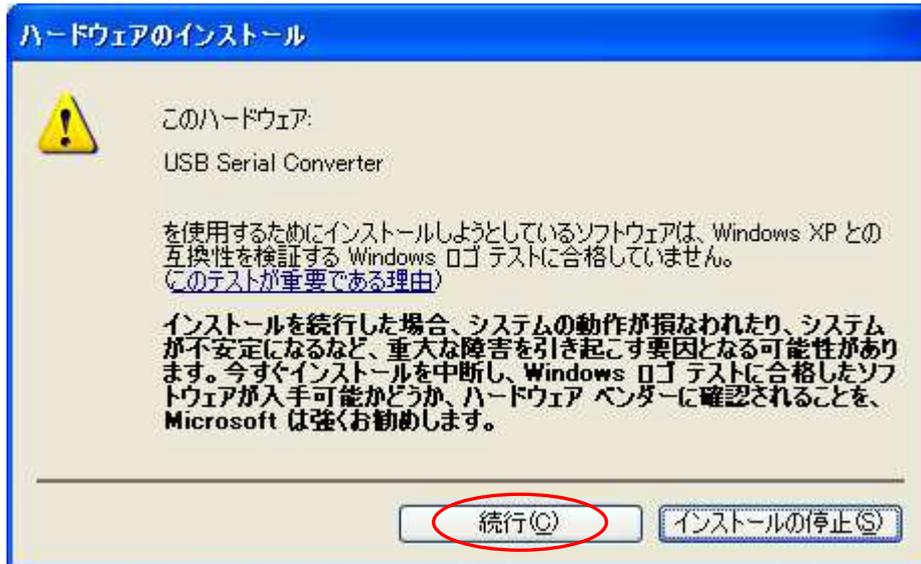
Select “Install from list or specific location” and click the “NEXT” button.



Insert the attached CD into the PC and select “Search for the driver in the following places”. Click “Include the following location”, select “driver/Windows” in the CD driver from the reference, and click the “NEXT” button.



The following screen will be displayed (Only XP), but there is no problem click “Continue” button.



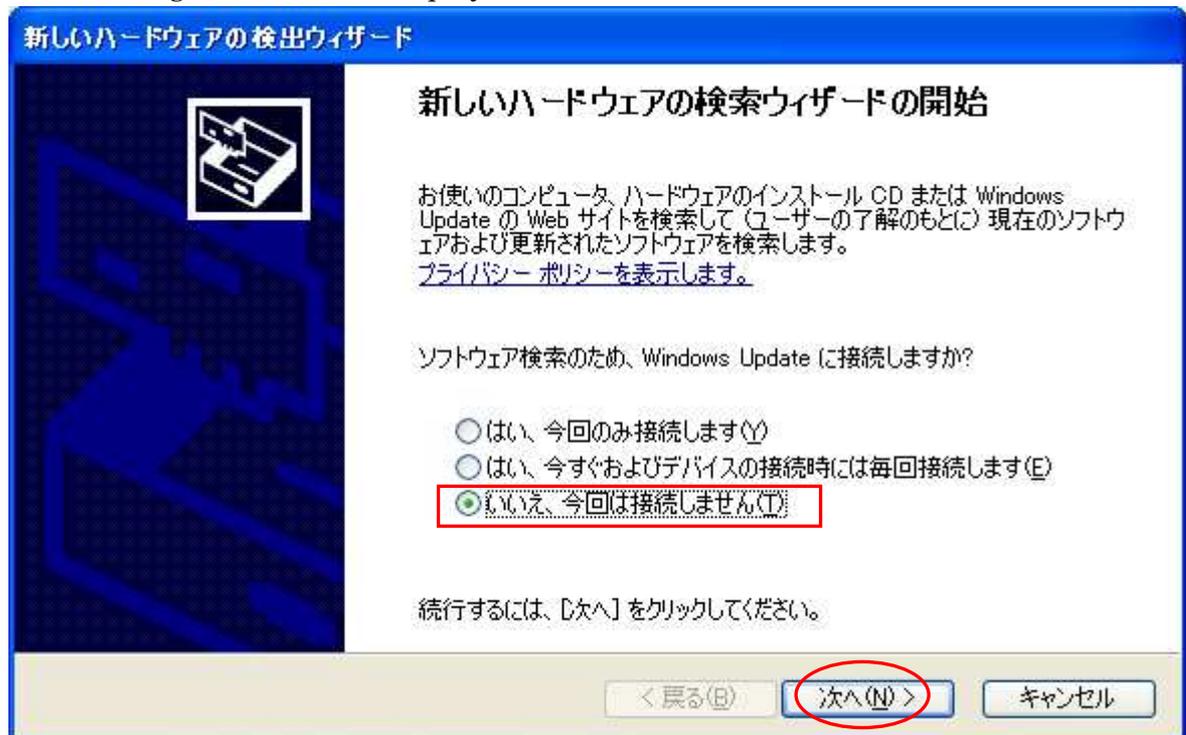
The following screen will be displayed.



The following screen will be displayed when installation of the device driver is completed. Click “Finish” button.

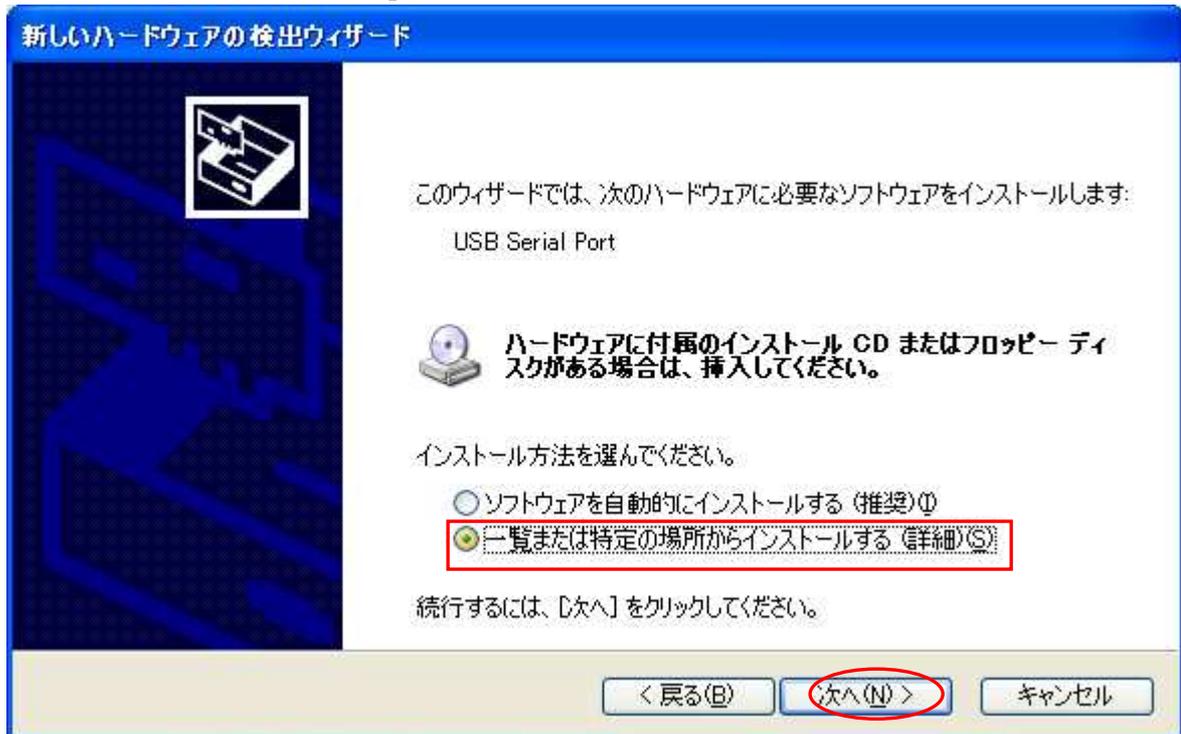


The following screen will be displayed.

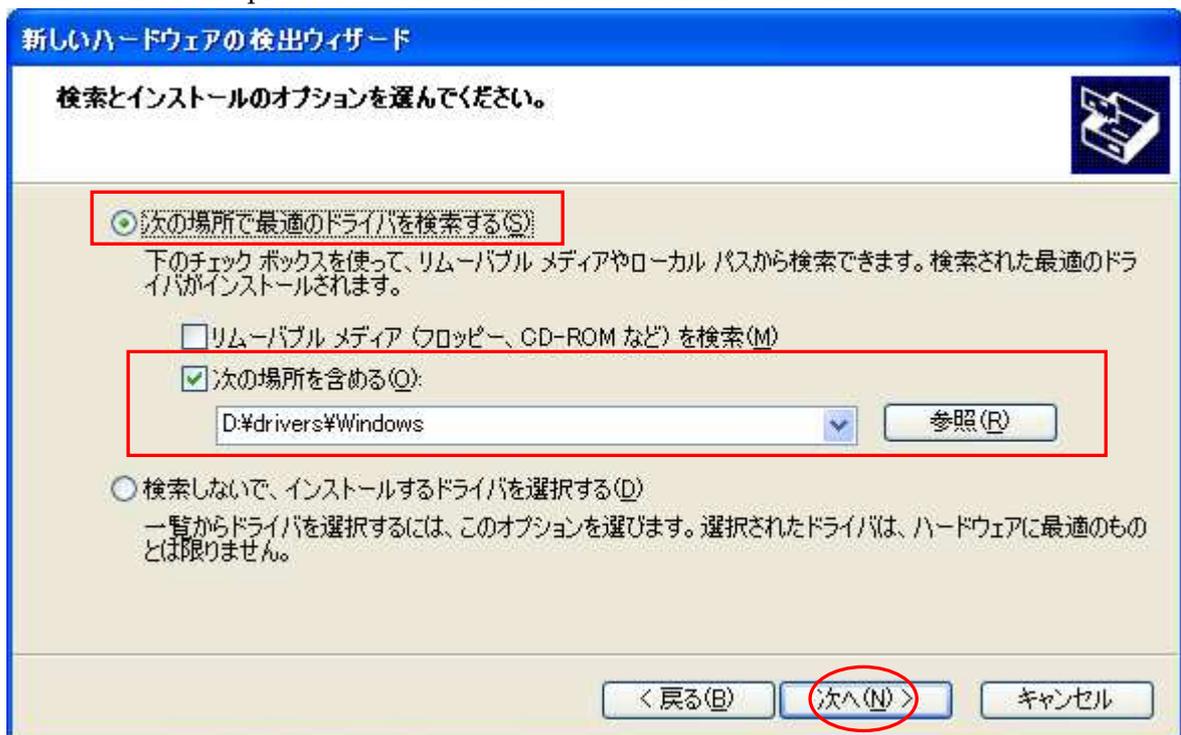


Select “No, it does not connect this time(T)” and click the “NEXT” button.

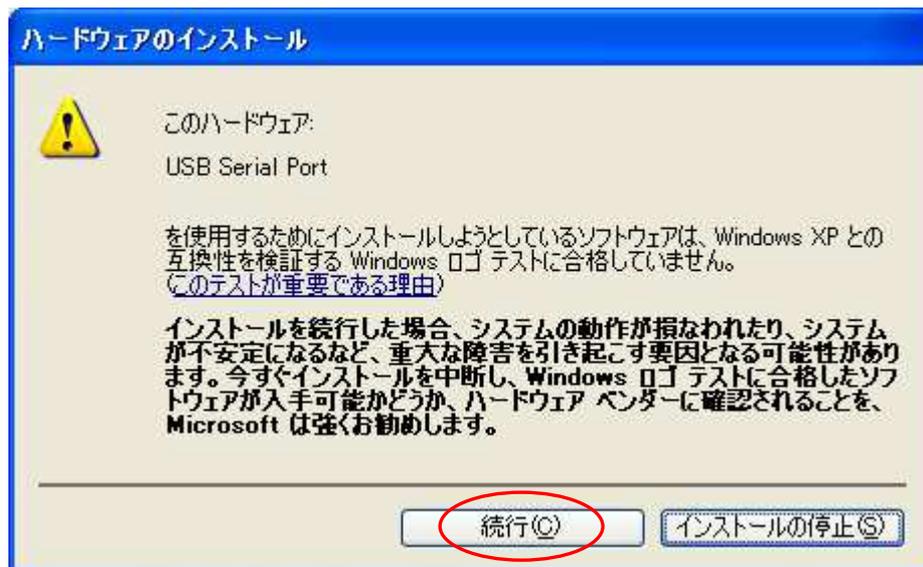
Select "Install from list or specific location" and click the "NEXT" button.



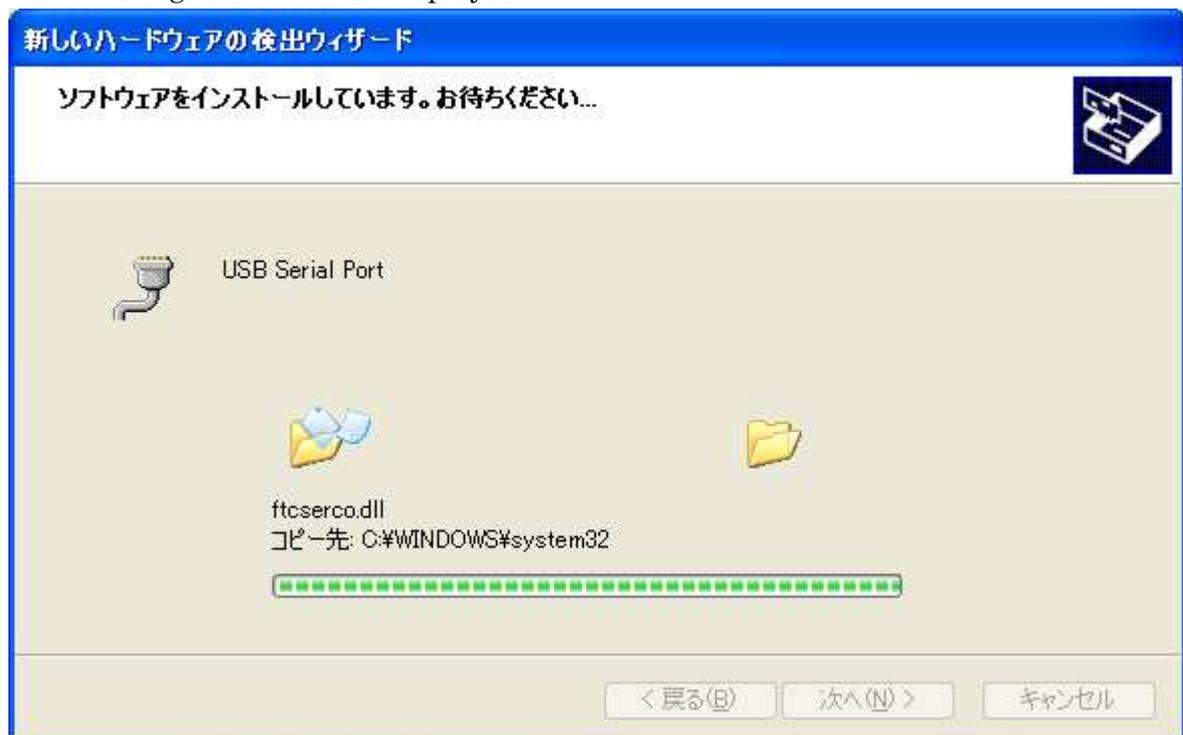
Refer to the same place as before and click the "NEXT" button.



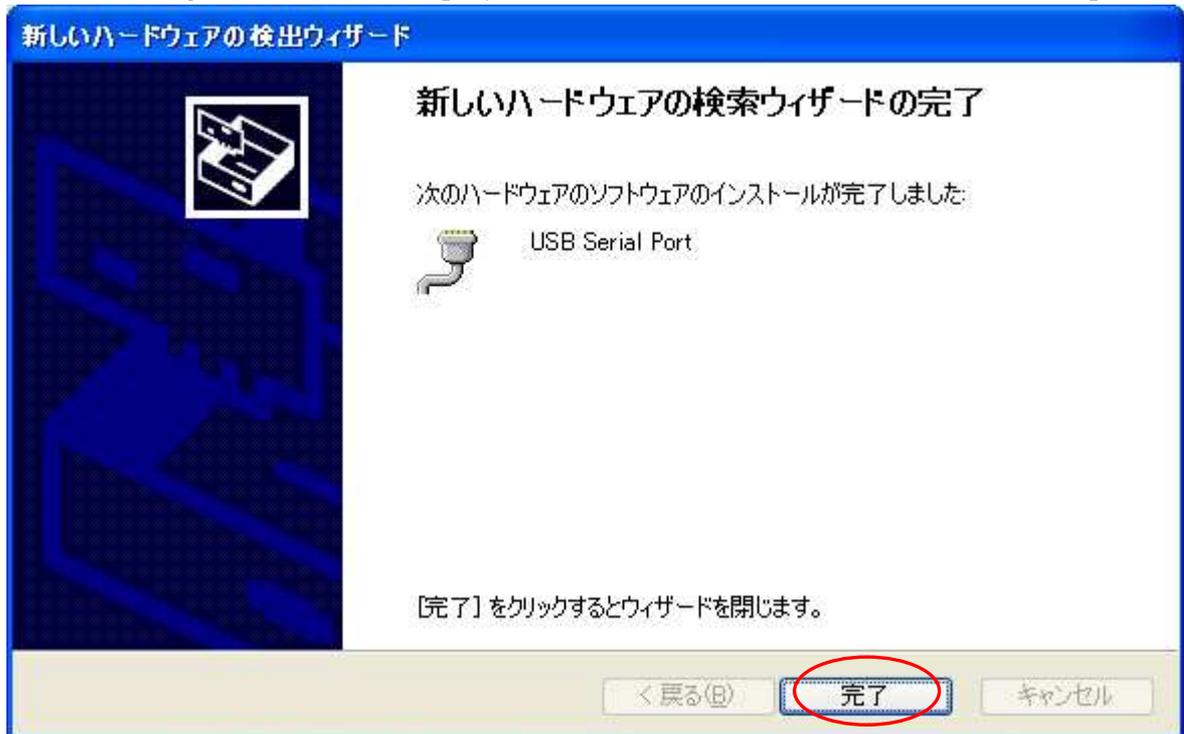
There is no problem click “Continue” button.



The following screen will be displayed.



The following screen will be displayed when installation of device driver is completed.



Installation of the device driver is completed. Click “Finish” button. Since it may be required to restart depending on the configuration of the PC, restart according to the instructions on the screen. Even if you connect to the computer from the next time, these screen will not be displayed.

## 4.Operation

### 4.1.Preparation

ZS-6228-8R uses API made by FTDI inc. depending on each programming language, include the following files.

Visual Basic	:D2XX_Module.bas
Visual C++	:FTD2XX.H、FTD2XX.lib
Delphi	:D2XXUnit.pas

### 4.2.Function

In order to control the relay, use the following function. See D2XXPG34.pdf for detail on this function.

FT_Open	:Open the USB port.
FT_OpenEx	:Open the USB port when using multiple units.
FT_Close	:Close USB port.
FT_SetBitMode	:Set the I/O of the 8-bit port
FT_SetBaudRate	:Set the rewrite time of 8 bits
FT_Write	:Turn relay ON/OFF.

#### 4.2.1. FT\_Open

- Function  
Open the USB port and initialized.
- Format  
FT\_Open (int iDevice, FT\_HANDLE \*ftHandle)  
iDevice :Set "0".  
ftHandle :If FT\_Open is successful, the handle number will be returned.  
Use this handle number when using other functions.
- Return value  
FT\_OK :In case of "0", success  
Other than "0" :Error

#### 4.2.2. FT\_OpenEx

- Function  
Open the USB port and initialized.  
In case of using multiple units, execute "FT\_OpenEX" for each one. It is possible to control by acquiring the handle number of each and using that number when using other functions.
- Format  
FT\_OpenEx (PVOID pvArg1, DWORD dwFlags, FT\_HANDLE \*ftHandle)  
pvArg1 :Set the product serial number(K-xxxxxx).  
dwFlags :Set "FT\_OPEN\_BY\_SERIAL\_NUMBER".  
ftHandle :If FT\_Open is successful, the handle number will be returned.  
Use this handle number when using other functions.
- Return value  
FT\_OK :in case of "0", success  
Other than "0" :Error

### 4.2.3. FT\_Close

- Function  
Close the USB port and execute driver termination processing.
- Format  
FT\_Close (FT\_HANDLE ftHandle)  
ftHandle :set the handle number
- Return value  
FT\_OK :In case of “0”, success  
Other than “0” :Error

### 4.2.4. FT\_SetBitMode

- Function  
Set I/O of 8 bits
- Format  
FT\_SetBitMode (FT\_HANDLE ftHandle, UCHAR ucMask, UCHAR ucMode)  
ftHandle :Set the handle number  
ucMask :Set HEX(FF), 0:Input 1:Output  
Since “8 bits” are relay output, set “FF”.  
ucMode :Set “1”
- Return value  
FT\_OK :In case of “0”, success  
Other than “0” :Error

### 4.2.5. FT\_SetBaudRate

- Function  
Set the rewrite time of output data.
- Format  
FT\_SetBaudRate (FT\_HANDLE ftHandle, DWORD dwBaudRate)  
ftHandle :Set the handle number  
DwBaudRate :Set ”9600”  
When set to 9600, data is rewritten at  $1 / (9600 \times 16) = 6.51 \mu\text{s}$  cycle. If there is no data in the buffer, the previous output is continued.
- Return value  
FT\_OK :in case of “0”, success  
Other than “0” :Error

#### 4.2.6. FT\_Write

➤ Function

Set relay On/OFF

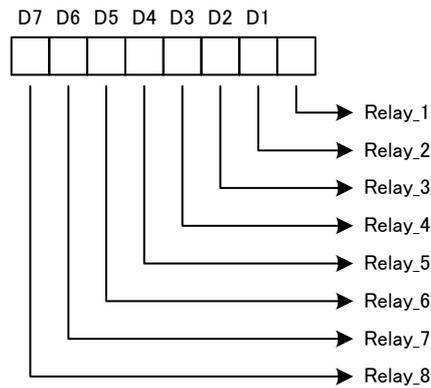
➤ Format

FT\_Write (FT\_HANDLE ftHandle, LPVOID lpBuffer, DWORD dwBytesToWrite, LPDWORD lpdwBytesWritten)

ftHandle :Set the handle number

lpBuffer :Set "1" when the relay is ON, "0" is OFF, and execute Byte output.

Bit assignments are as follows.



dwBytesToWrite :Set "1"

lpdwBytesWritten :Set "1"

➤ Return value

FT\_OK :In case of "0", successful

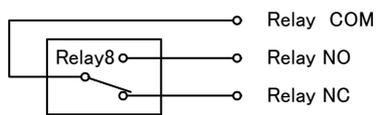
Other than "0" :Error

## 5.Connector

Connector: 57LE-40240-7700-FA

Signal	Pin No.		Signal
Relay 1_COM	1	13	Relay 5_COM
Relay 1_NO	2	14	Relay 5_NO
Relay 1_NC	3	15	Relay 5_NC
Relay 2_COM	4	16	Relay 6_COM
Relay 2_NO	5	17	Relay 6_NO
Relay 2_NC	6	18	Relay 6_NC
Relay 3_COM	7	19	Relay 7_COM
Relay 3_NO	8	20	Relay 7_NO
Relay 3_NC	9	21	Relay 7_NC
Relay 4_COM	10	22	Relay 8_COM
Relay 4_NO	11	23	Relay 8_NO
Relay 4_NC	12	24	Relay 8_NC

### Relay



## 6. Warranty

If it fails during normal use, we will repair it free of charge as described in this warranty as below.

- 1) During the warranty period which is one year from the date of purchase, we will repair it free of charge in case of malfunction in accordance with instruction manual.
- 2) It will be charged for extra in the following case, even during warranty period.
  - Incorrect usage or failure or damage caused by carelessness.
  - Failure or damage caused by improper repair or remodeling.
  - Failure or damage caused by external factors such as fire, earthquake, other natural disasters, abnormal voltage and so on.
  - Replacement of consumable parts.
  - Change of power supply and voltage.
- 3) This warranty provision is effective only in Japan