

**ZS-6225 Series**

**USB Adapter**

**User's Manual**



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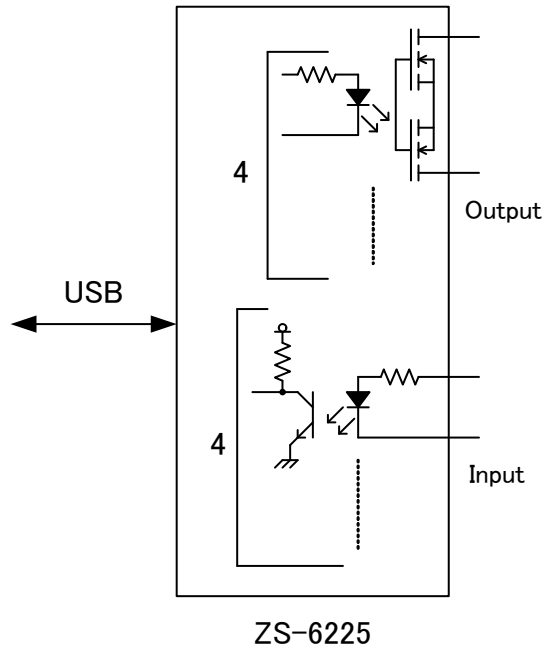
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## 1.Outline

ZS-6225 is a unit built-in 4 PhotoMOS relays and 4 Photocouplers.

By connecting to a personal computer and operating PhotoMOS relay or Photocoupler, it is possible to be performed insulation between circuits, level conversion.



## 2.Specification

### 2.1.Operation environment

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

Not) Linux and Mac do not check the operation.

### 2.2.USB

Compliant with USB2.0 standard.

### 2.3.Product specification

Model	ZS-6225P	ZS-6225S
Feature	Printed circuit type	Small case built-in type
Data connector	24P Amphenol connector	24P Amphenol connector
Power supply	USB bus power DC4.75V to 5.25V 100mA or less	USB bus power DC4.75V to 5.25V 100mA 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

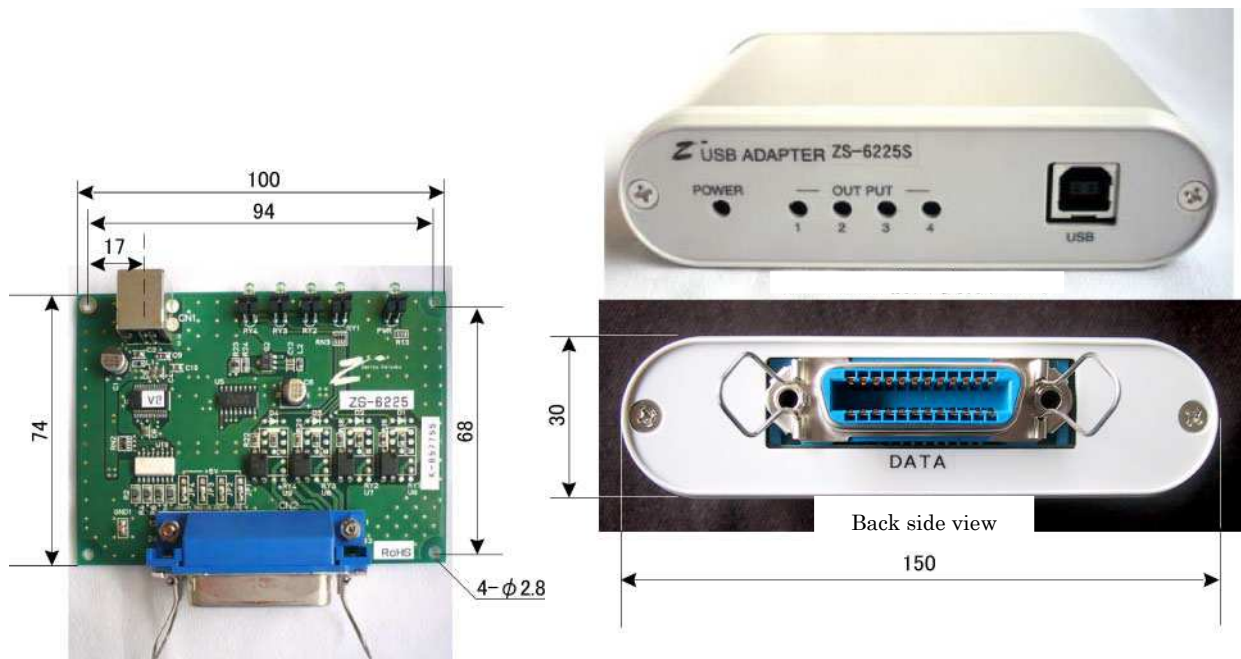
### 2.4.PhotoMOS

PhotoMOS relay	AQY211EH
Contact resistance	500mΩ or less
Switching part rated load	AC/DC 30V 1A
Operation time	5ms or less
Recovery time	5ms or less

### 2.5.Photocoupler

Photocoupler	PS2801-4
Input voltage	DC5V to DC24V

### 2.6.Apearance



## 3.Install

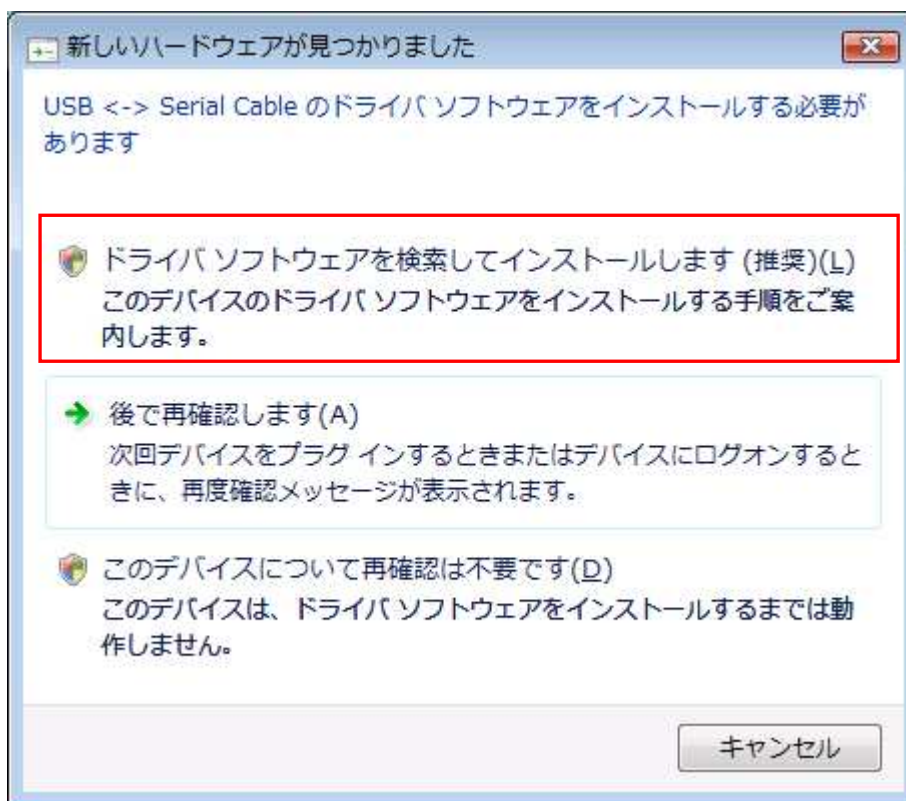
### 3.1.Windows Vista / 7

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 the personal computer, but it is basically the same.

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

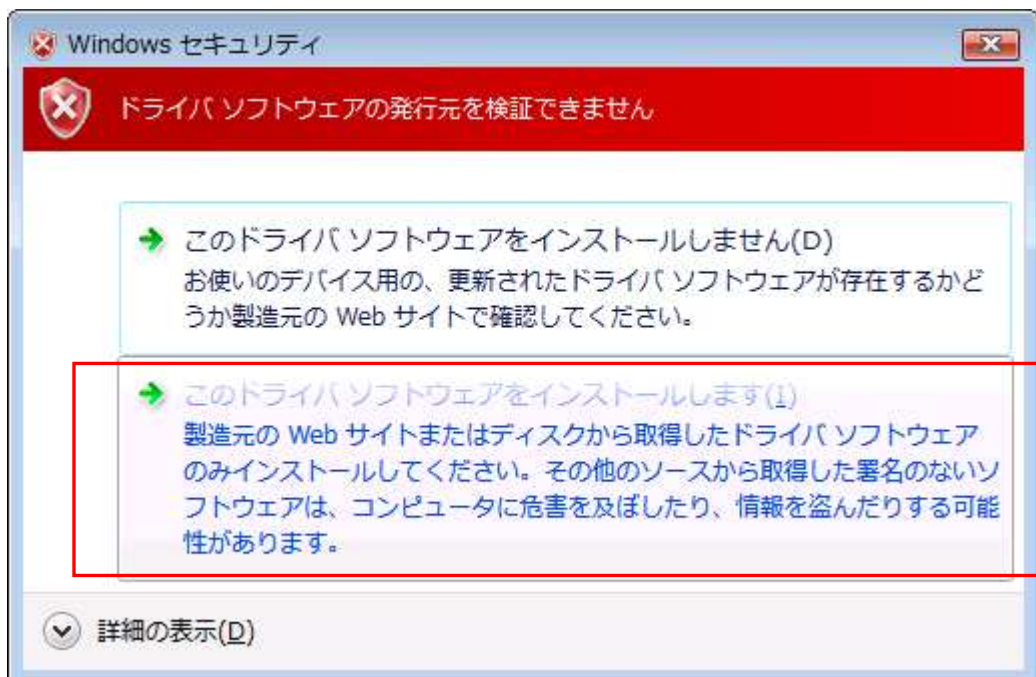


Click “Search and install driver software”.

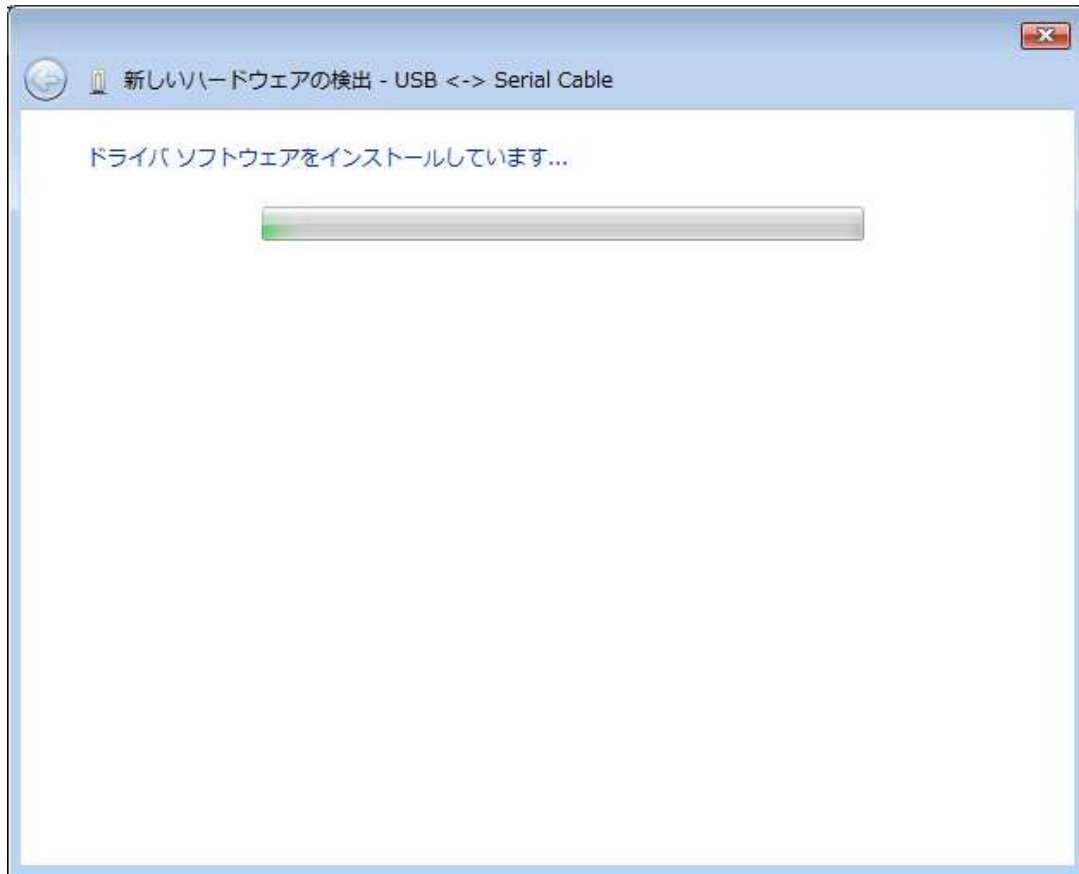
When the following indication displayed, insert the attached CD as instructed. The driver may be automatically installed without displaying the following screen when the personal computer is connected to the internet.



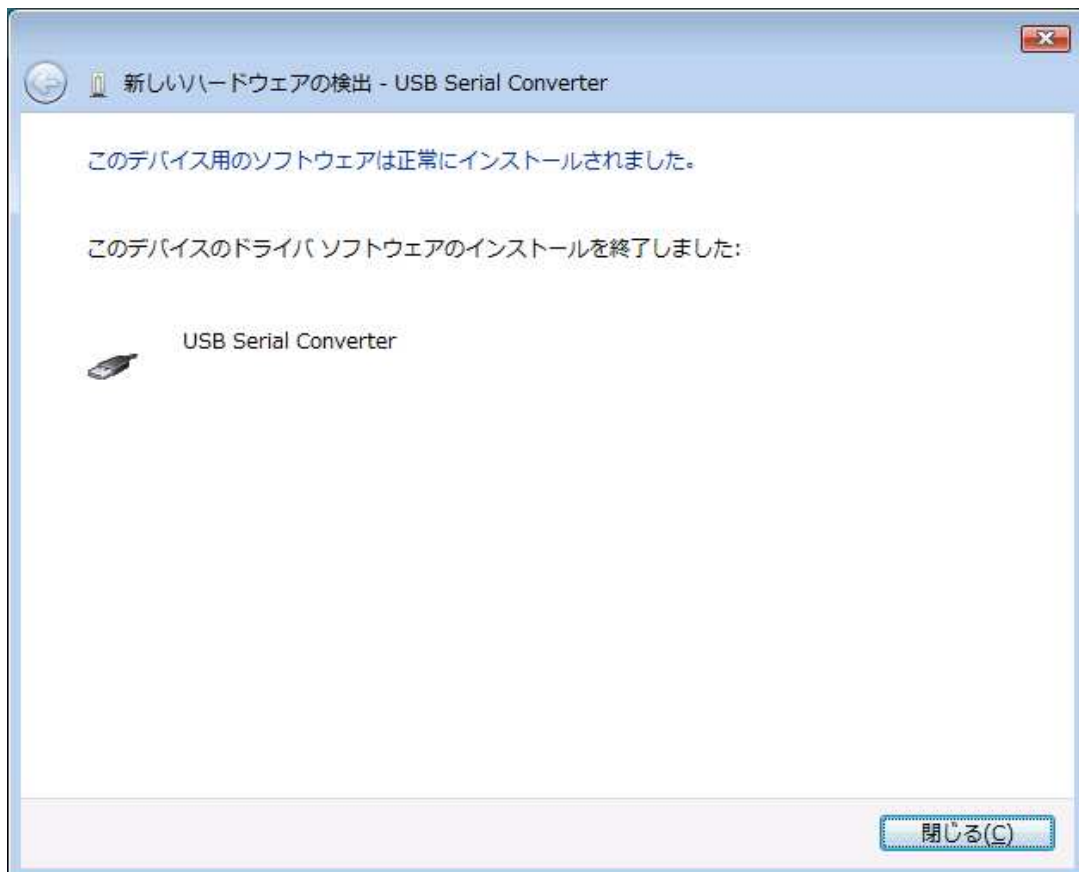
It will be displayed “It can not verify the publisher of the driver software”, but there is no problem. Click “Install this driver software”.



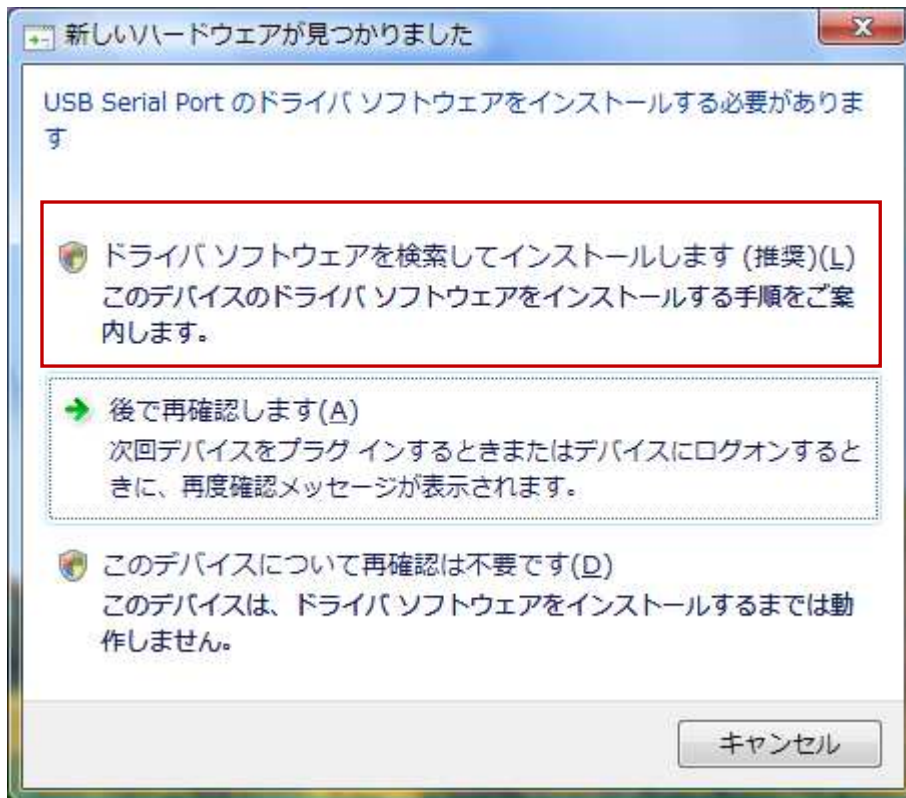
The following screen will be displayed.



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



The following screen will be displayed.



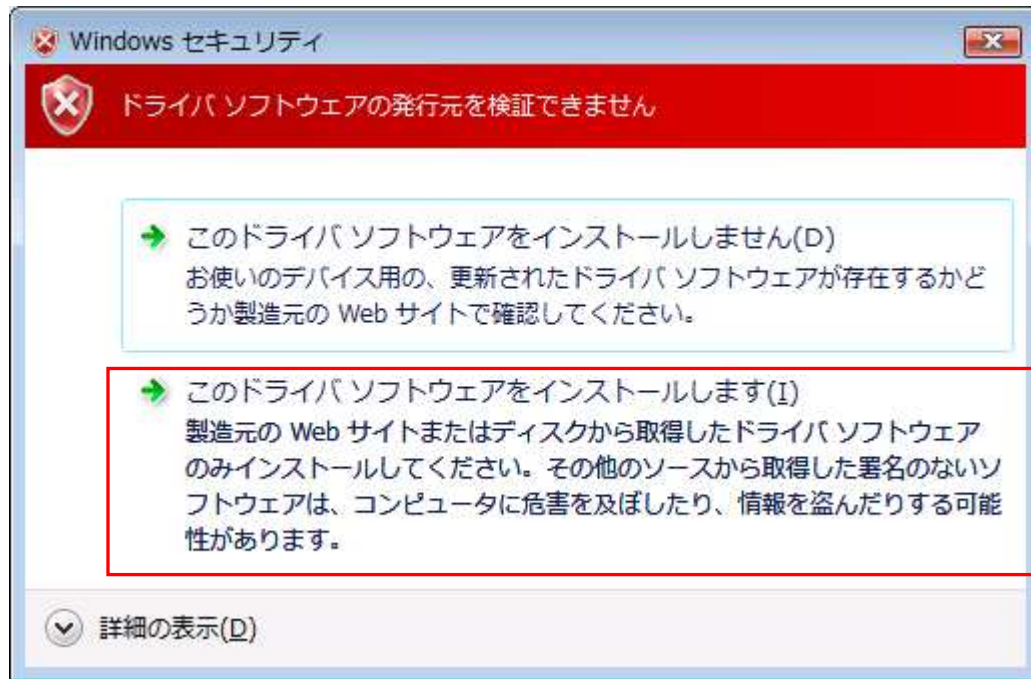
Click “Search and install driver software”.

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

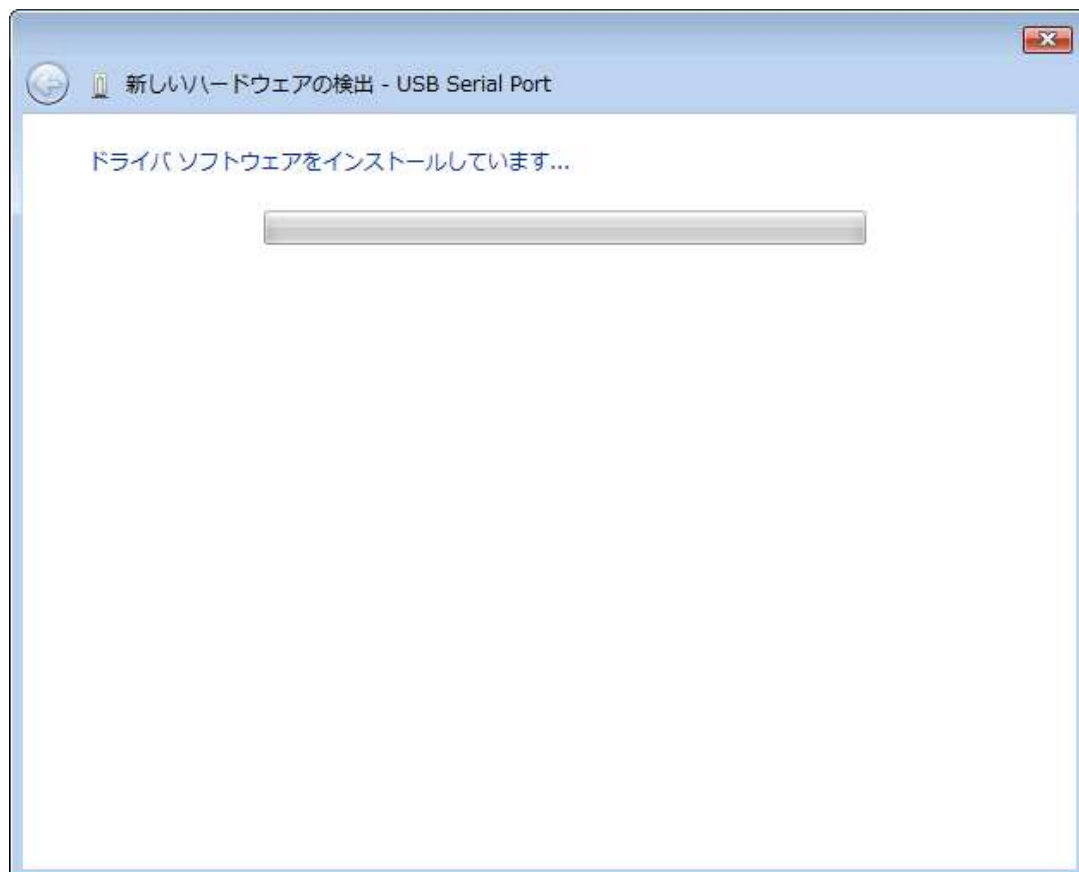




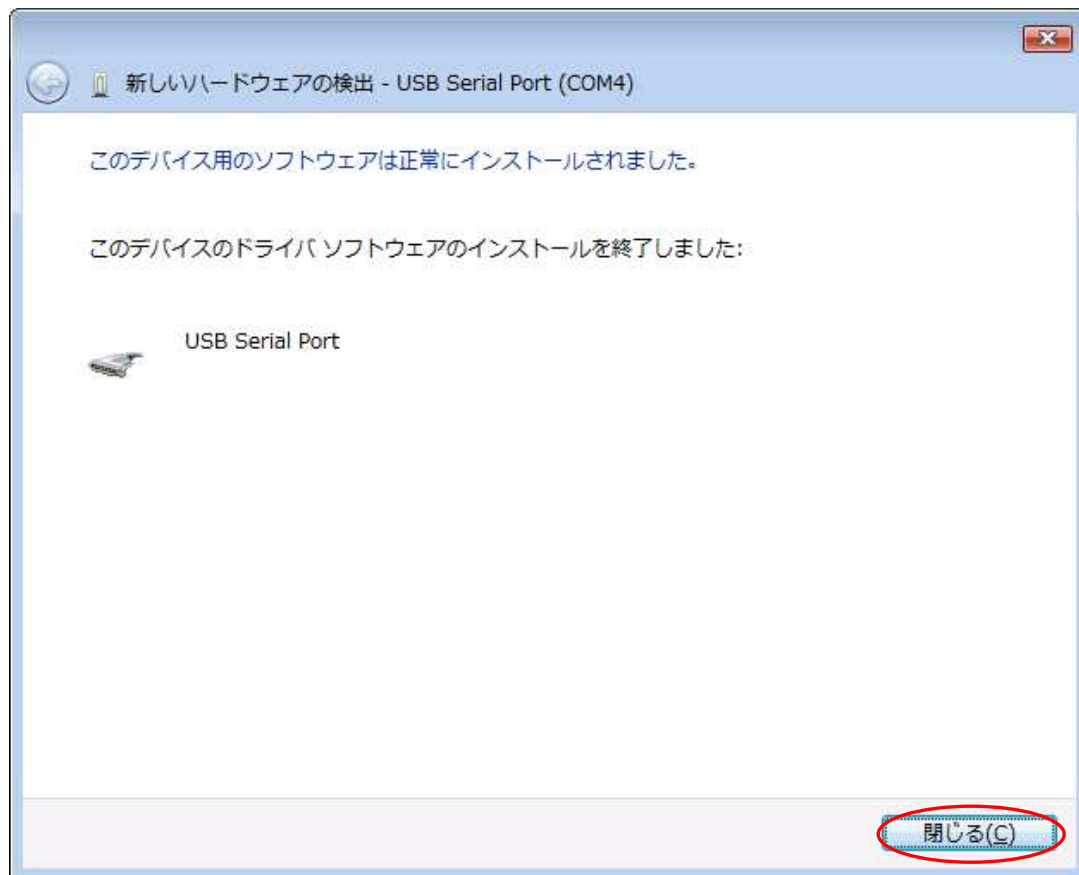
There is no problem. Click “Install driver software”.



The following screen will be displayed.



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



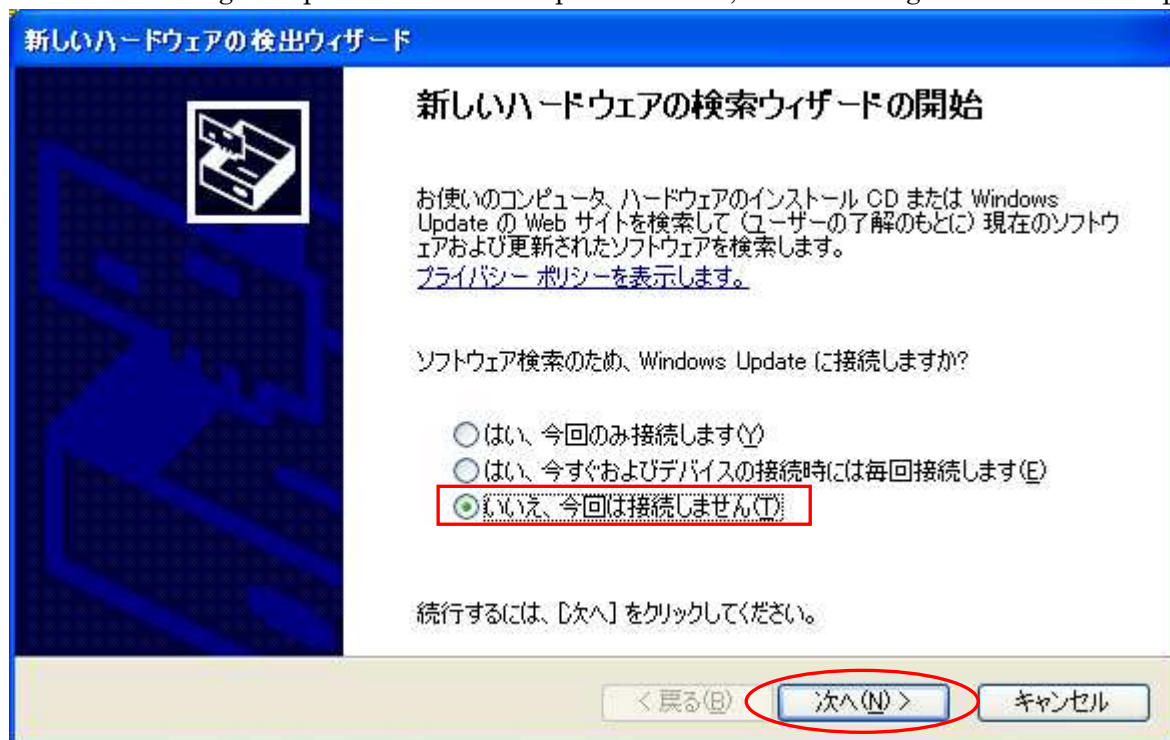
### 3.2.Windows XP/2000

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.

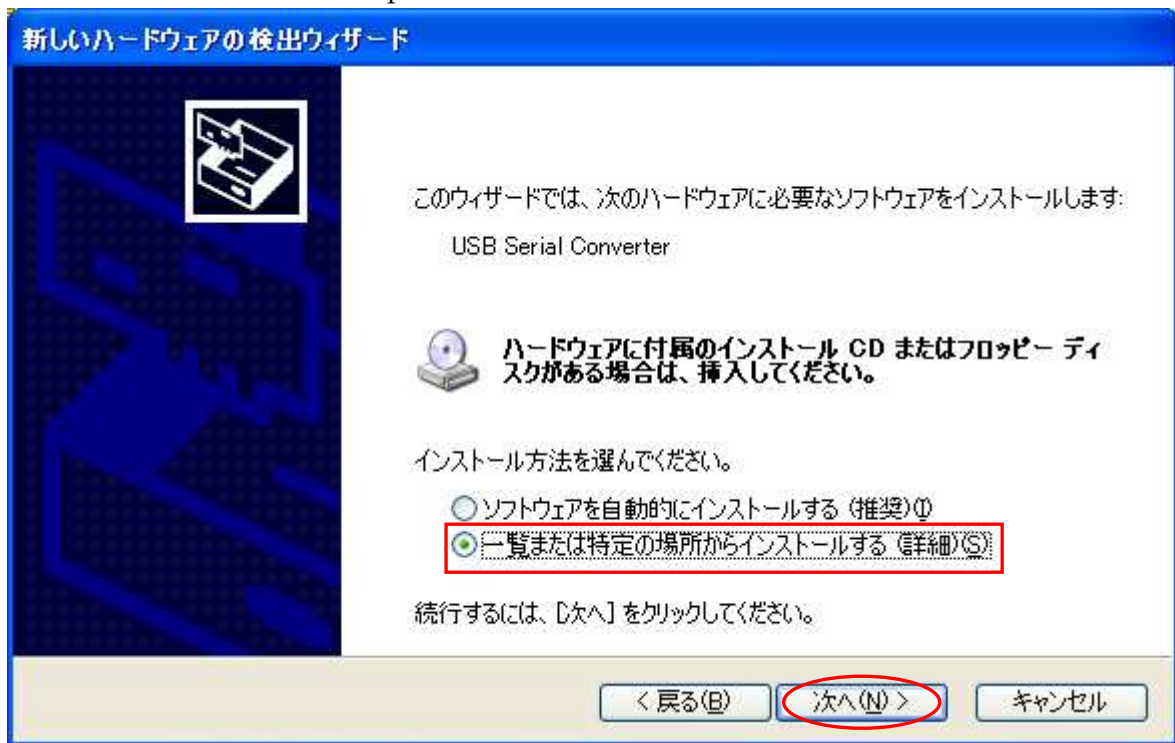
The “Device driver installation method” is explained as below. The display of sentences may differ depending on the personal computer, but it is basically the same.

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

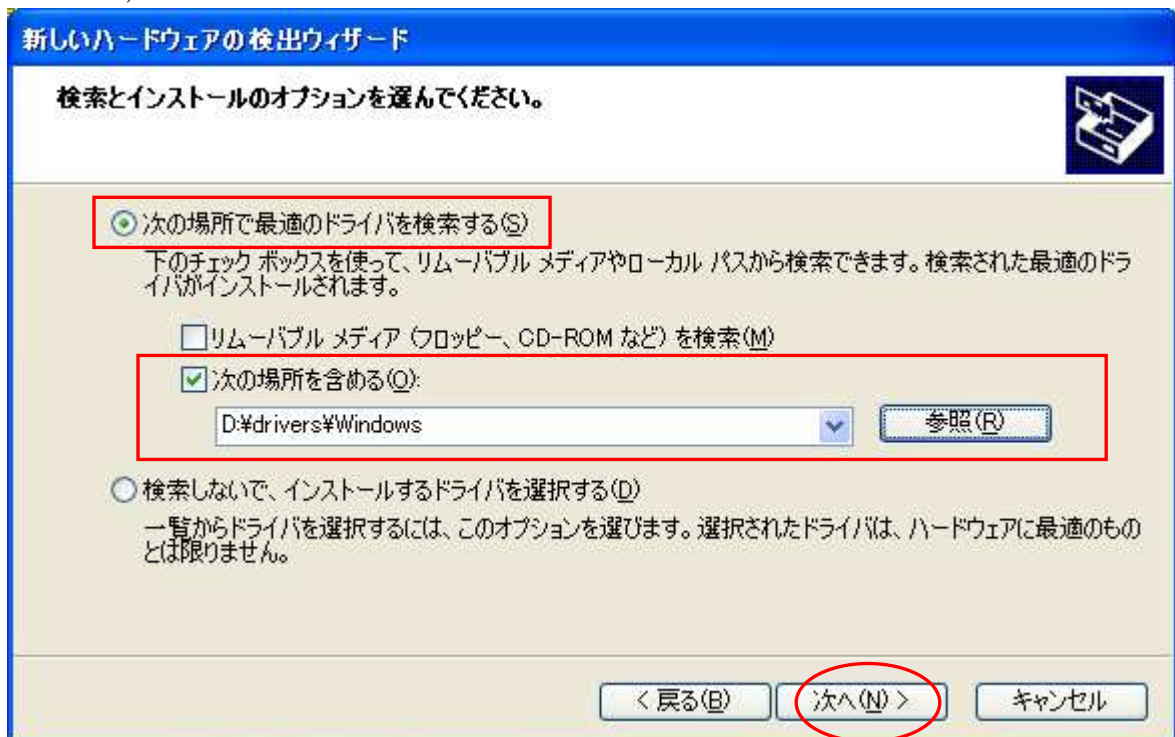


Select “No, it does not connect this time(T)” and click the “NEXT” button.

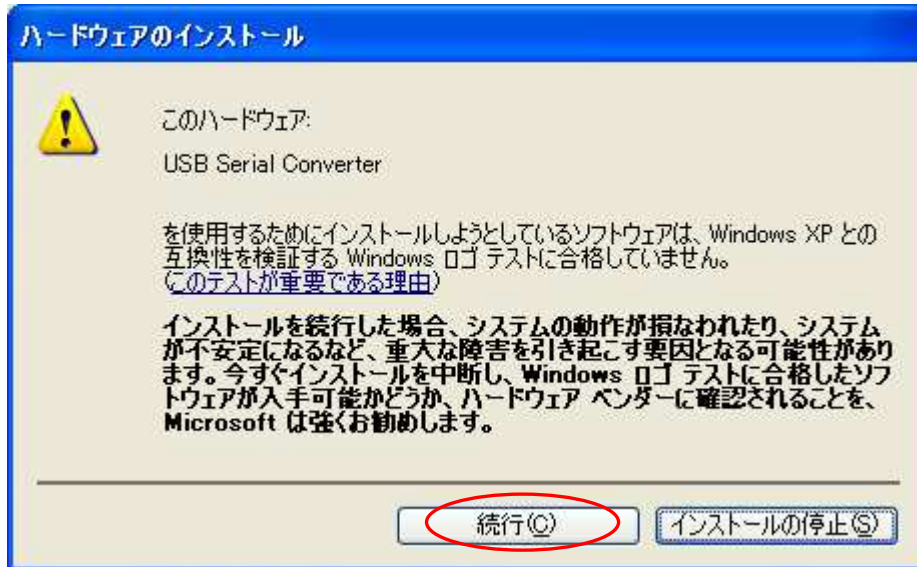
Select “Install from list or specific location” and click the “NEXT” button.



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.

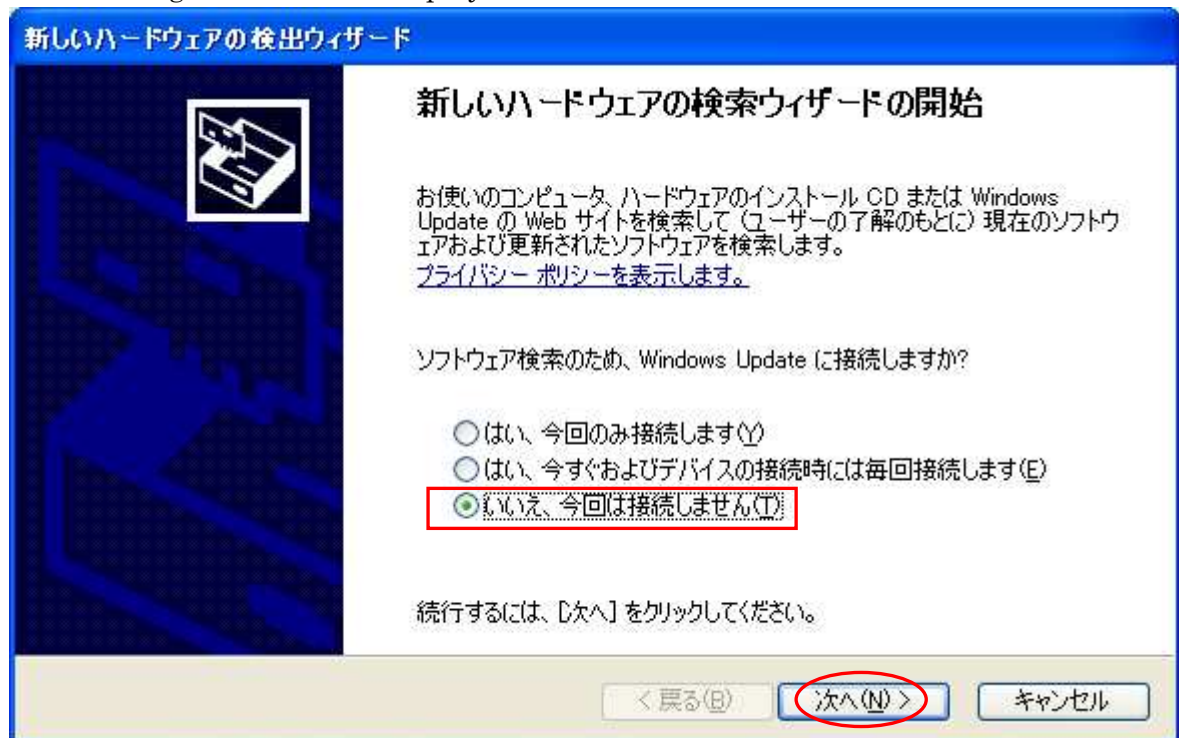




The following screen will be displayed when installation of the device driver is completed. Click “Finish” button.

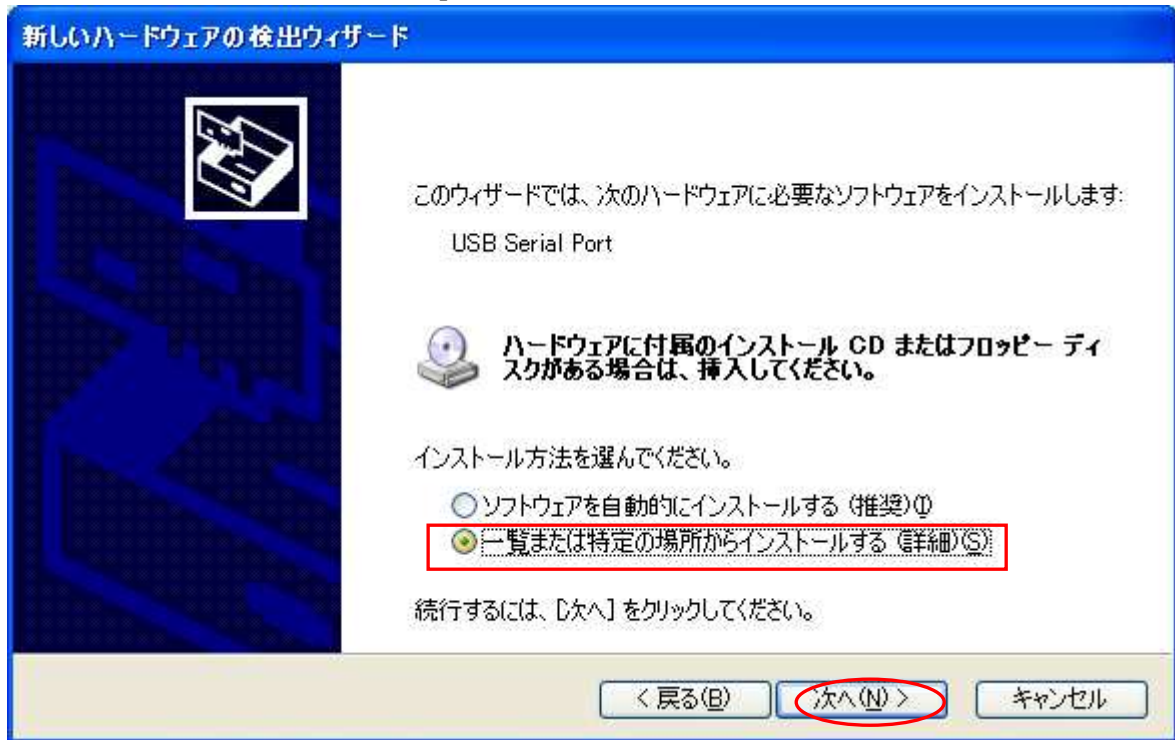


The following screen will be displayed.

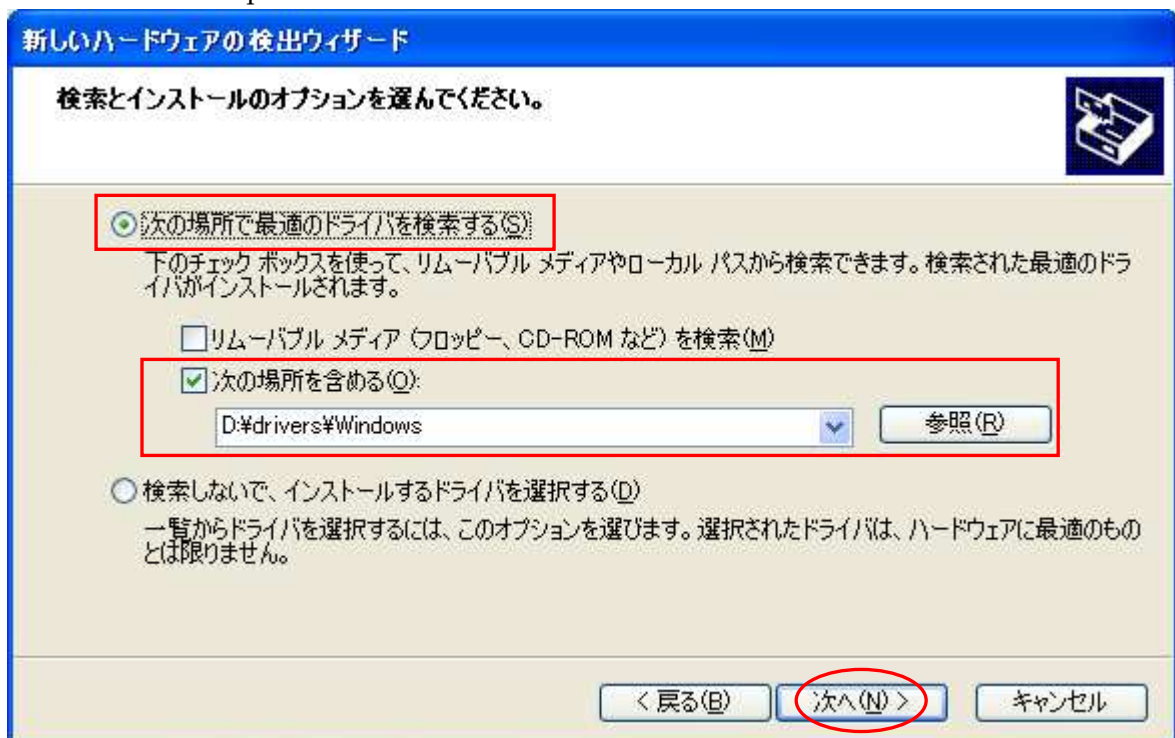


Select “No, it does not connect this time(T)” and click the “NEXT” button.

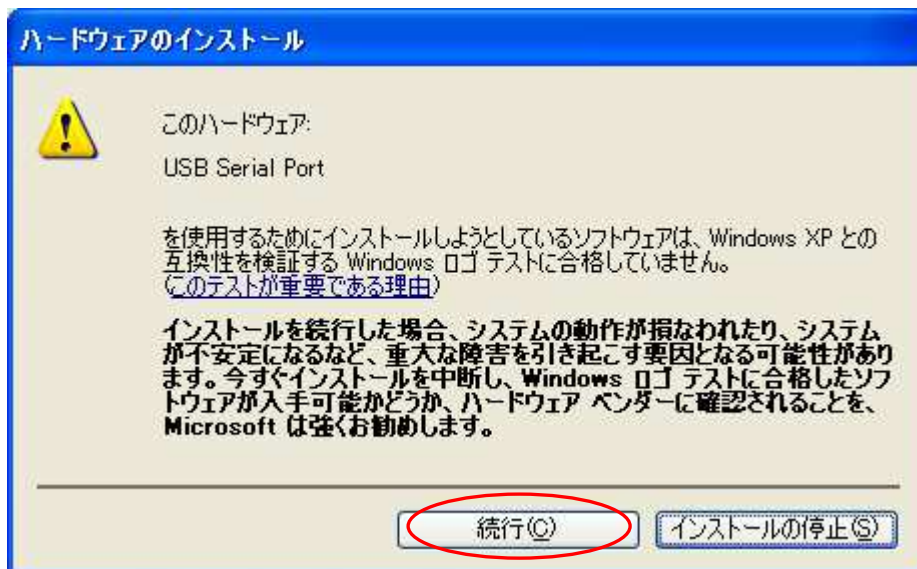
Select “Install from the list or specific location” and click the “NEXT” button.



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



There is no problem click “Continue” button.

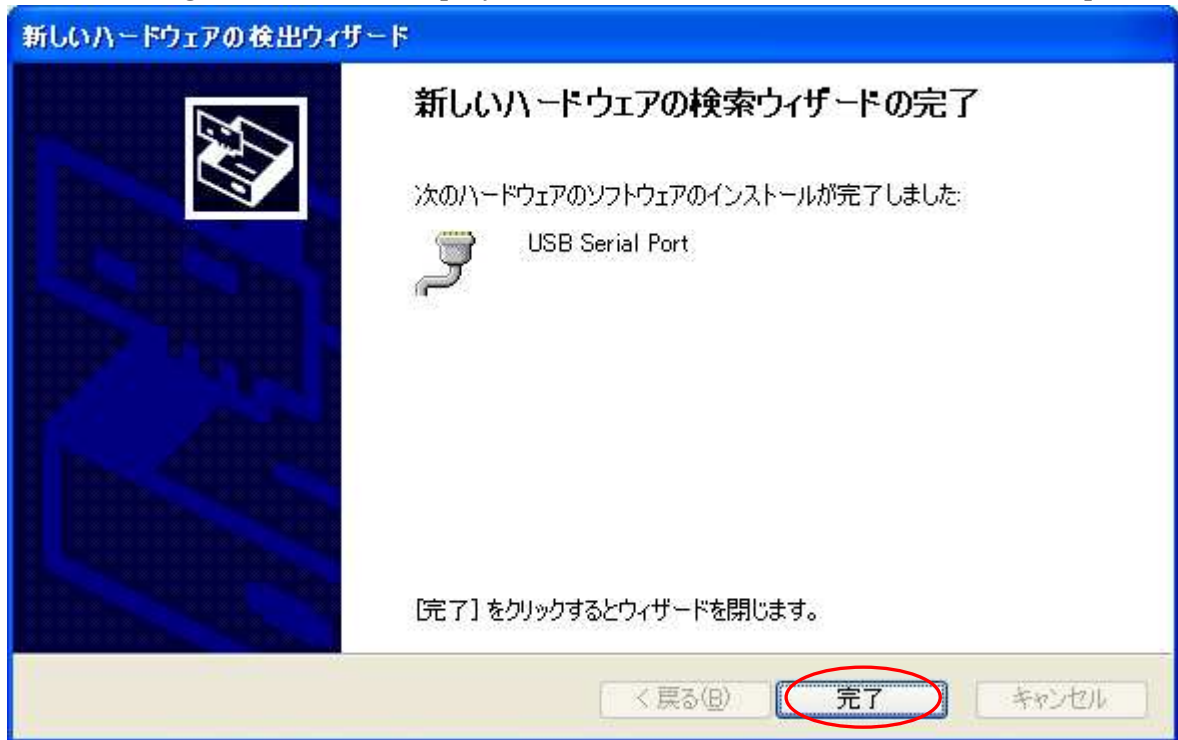


The following screen will be displayed.





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-6225 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 and input the photocoupler, use the following function.

FT_Open	:Open the USB port.
FT_OpenEx	:Open the USB port when using multiple units.
FT_Close	:Close the 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.
FT_GetBitMode	:Load the photocoupler.

#### 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\_Openis 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 of I/O of 8 bits
- Format  
FT\_SetBitMode (FT\_HANDLE ftHandle, UCHAR ucMask, UCHAR ucMode)  
ftHandle :Set the handle number.  
ucMask :Set HEX(0F), 0:Input 1:Output  
In the ZS-6225, the upper 4 bits are input to the photocoupler and lower 4 bits are set to the relay output. Since it is set “0F”.  
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 photoMOS relay ON/OFF.

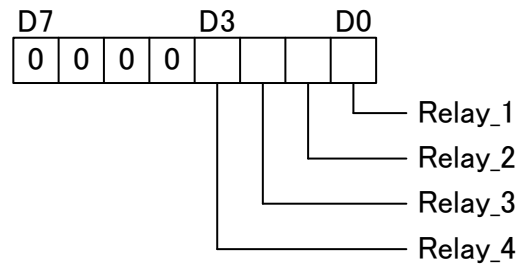
➤ Format

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", success

Other than "0" :Error

#### 4.2.7. FT\_GetBitMode

➤ Function

Load photocoupler

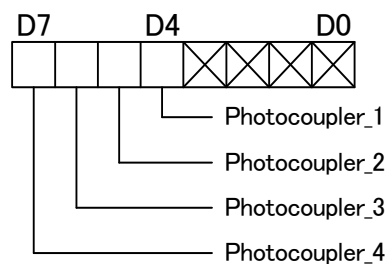
➤ Format

FT\_Read (FT\_HANDLE ftHandle, PCHAR pucMode)

ftHandle :Set the handle number.

pucMode :Set "1" when the relay is driving, "0" is not driving.

Bit assignments are as follows.



➤ Return value

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

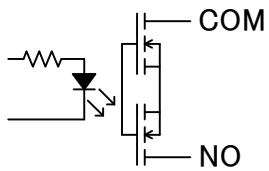
Other than "0" :Error

## 5.Connector

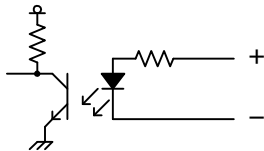
Connector: 57LE-40240-7700-FA

Signal	Pin No.		Signal
MOS relay 1_COM	1	13	MOS relay 3_COM
MOS relay 1_NO	2	14	MOS relay 3_NO
	3	15	
MOS relay 2_COM	4	16	MOS relay 4_COM
MOS relay 2_NO	5	17	MOS relay 4_NO
	6	18	
GND	7	19	GND
Photocoupler 1_IN+	8	20	Photocoupler 1_IN-
Photocoupler 2_IN+	9	21	Photocoupler 2_IN-
Photocoupler 3_IN+	10	22	Photocoupler 3_IN-
Photocoupler 4_IN+	11	23	Photocoupler 4_IN-
GND	12	24	GND

PhotoMOS relay



Photocoupler



## 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