ZS-6228-8N Series
USB-Photocoupler Adapter

User's Manual

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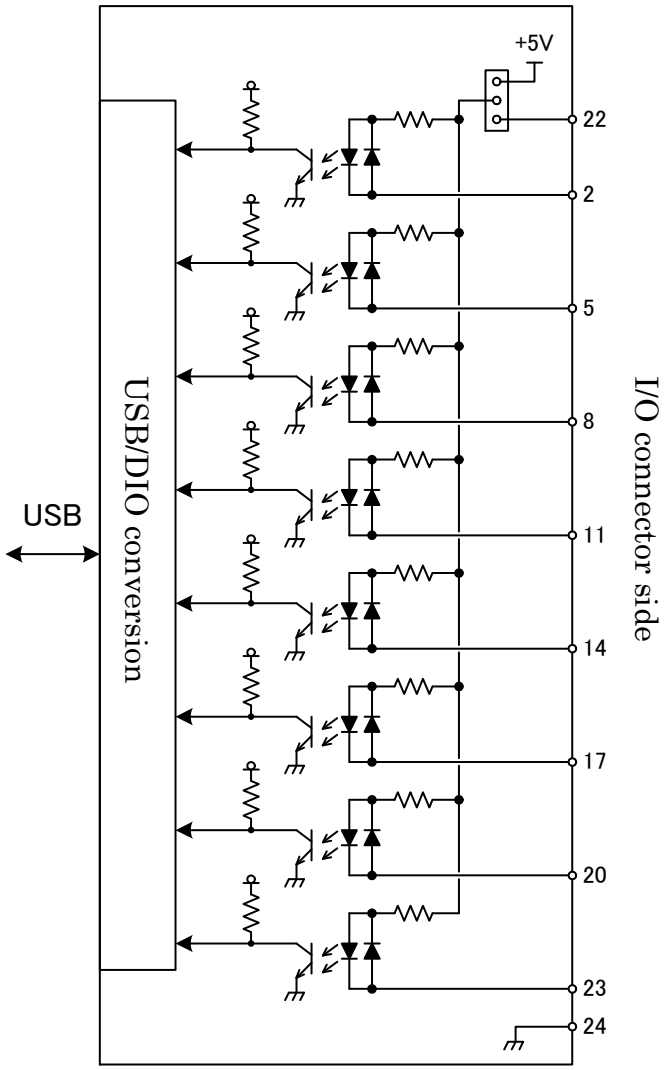
1.Outline

ZS-6228-8N is a unit with 8 photocoupler built-in. By connecting to the personal computer and operating the photocoupler and operating the photocoupler, circuit isolation, level conversion, can be performed.



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.

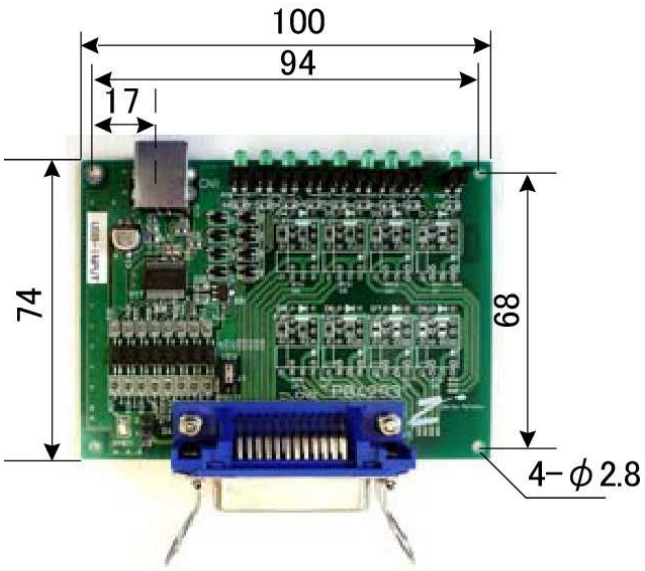
2.3.Product specification

Model	ZS-6228P-N	ZS-6228S-8N
Feature	Printed circuit board 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℃ to 50℃ Humidity 85% or less	Temperature 0℃ to 50℃ Humidity 85% or less
Storage Temp	-20℃ to 80℃	-20℃ to 80℃
Size	100×74×20H	150×100×30H
Accessary	Data connector 57-30240	Data connector 57-30240

2.4.Photocoupler

Photocoupler	PS2801-4
Input voltage	DC5V to DC24V

2.5.Appearance



3.Install

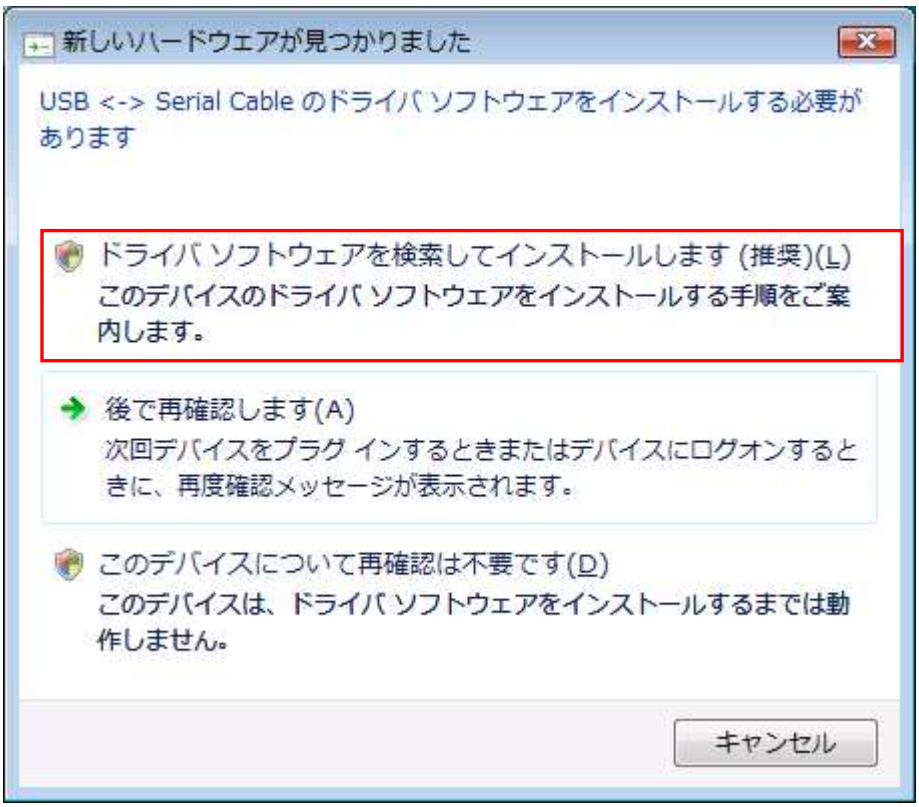
3.1.Windows Vista / 7

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.

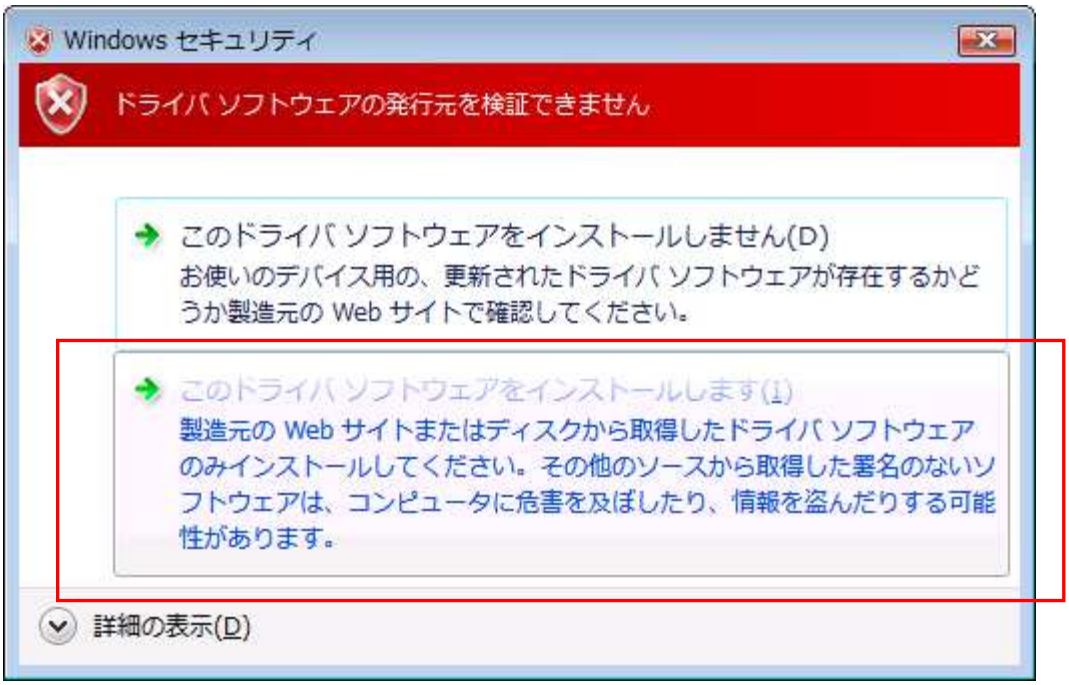
When connecting this product to the computer at first, the following screen will be displayed.



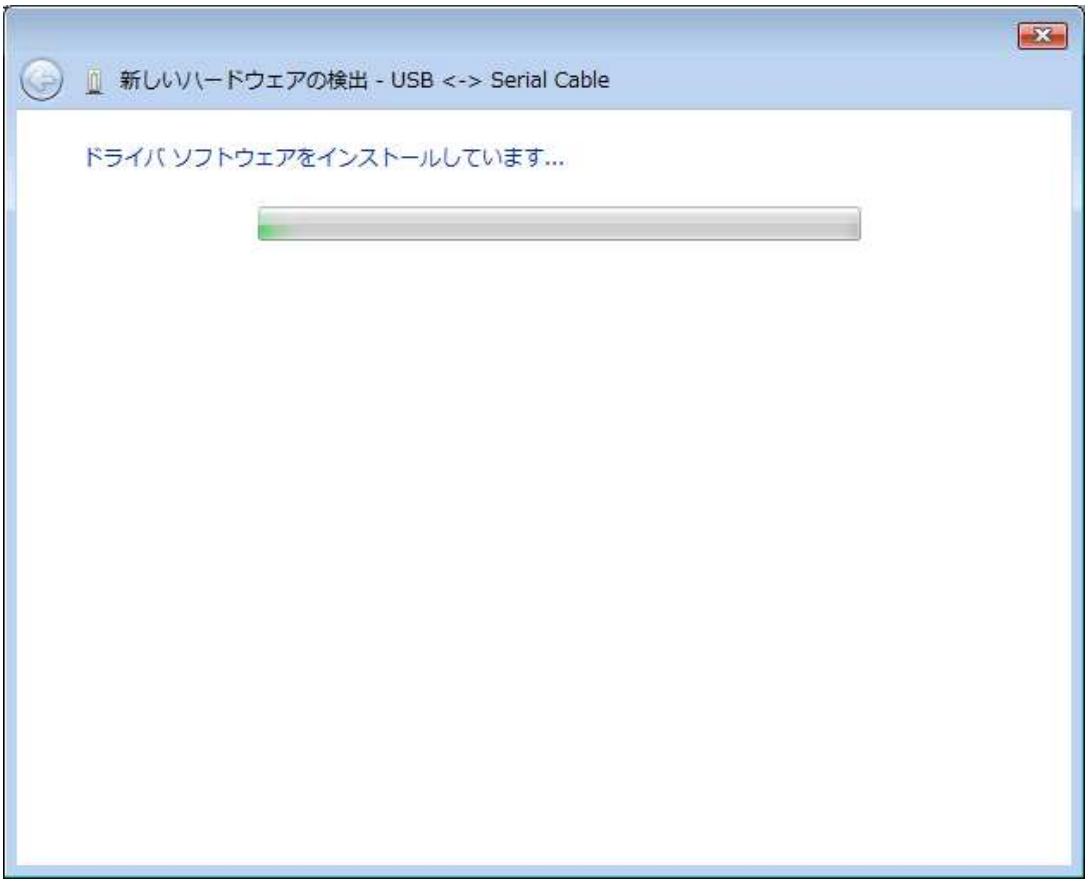
Click “Search and install driver software".

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.

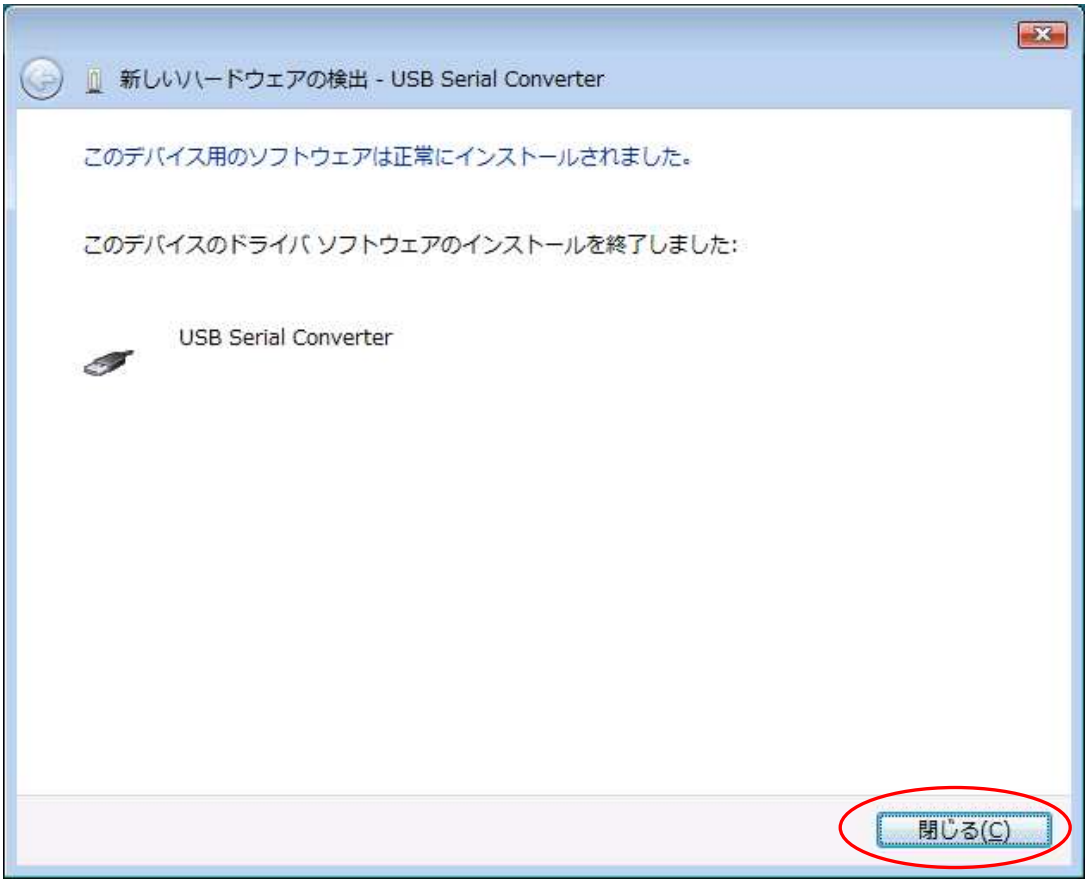
It will be displayed “It can not verify the publisher of the driver software”, but there is no problem. Click “Install this driver software”.



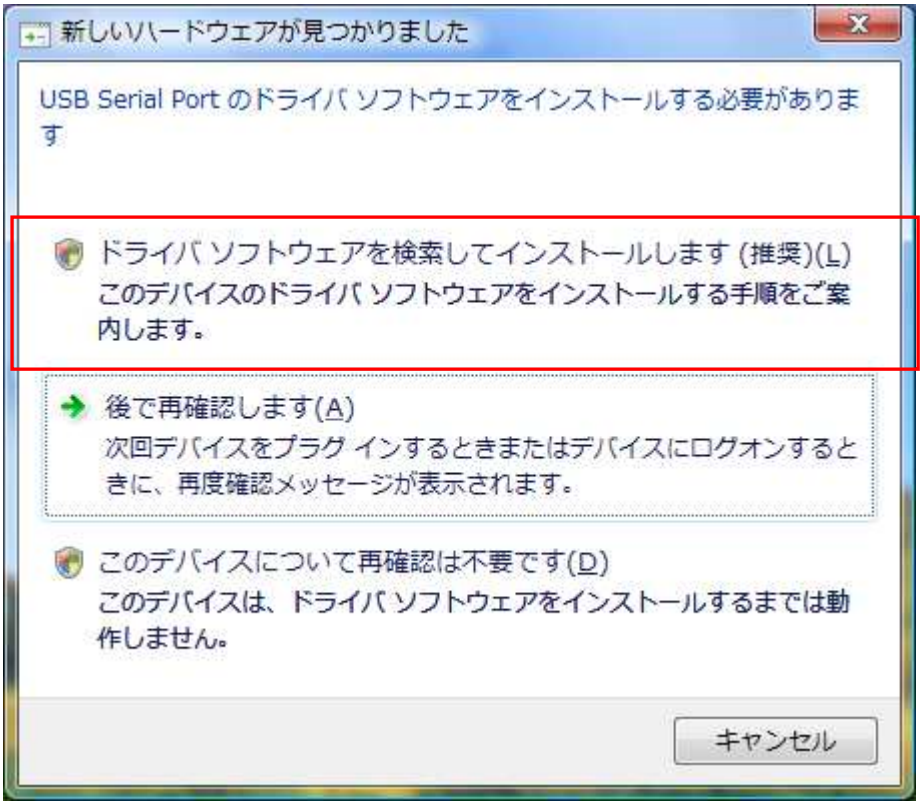
The following screen will be displayed.



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



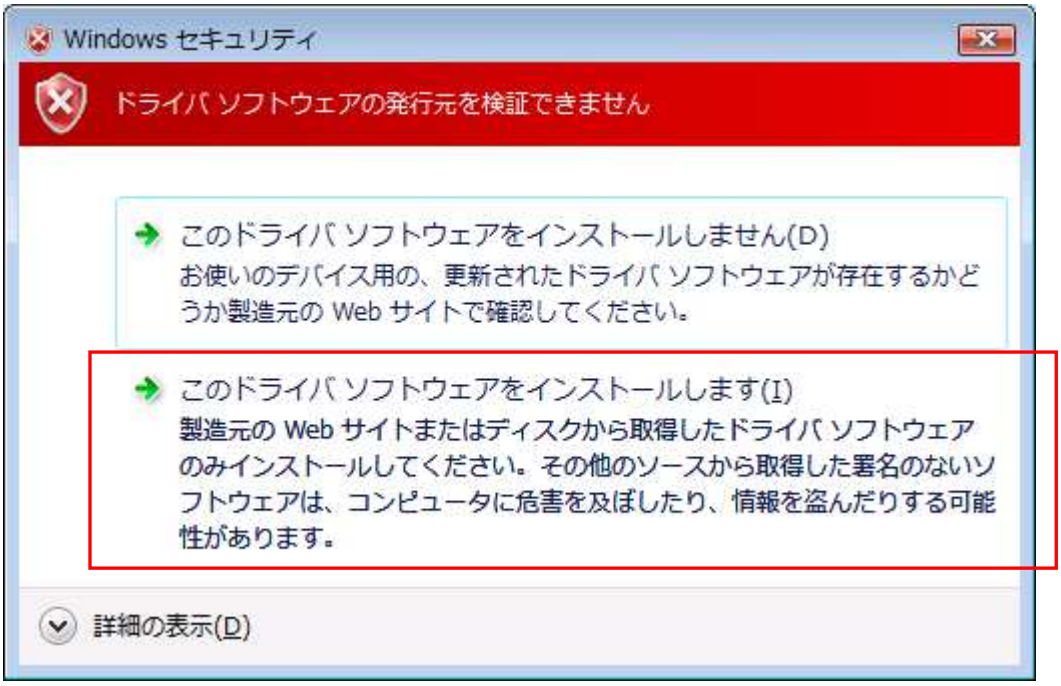
The following screen will be displayed.



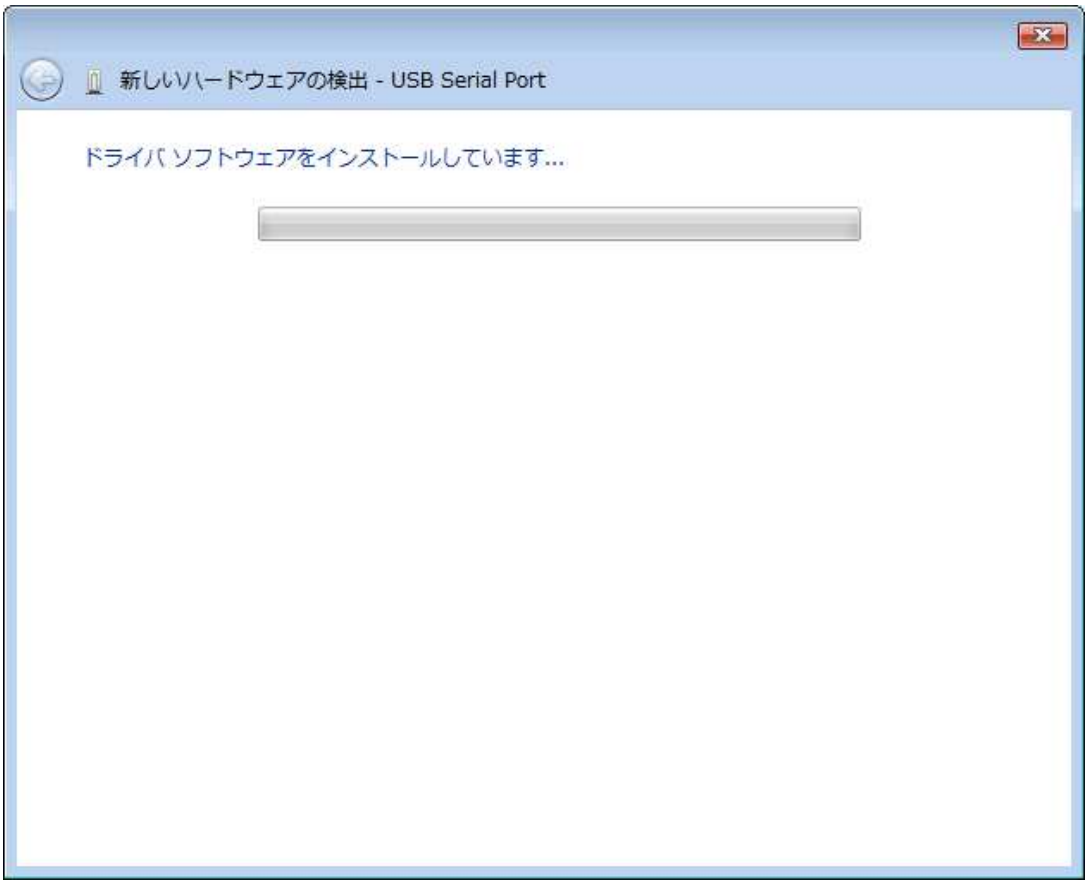
Click “ Search and install driver software”.

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

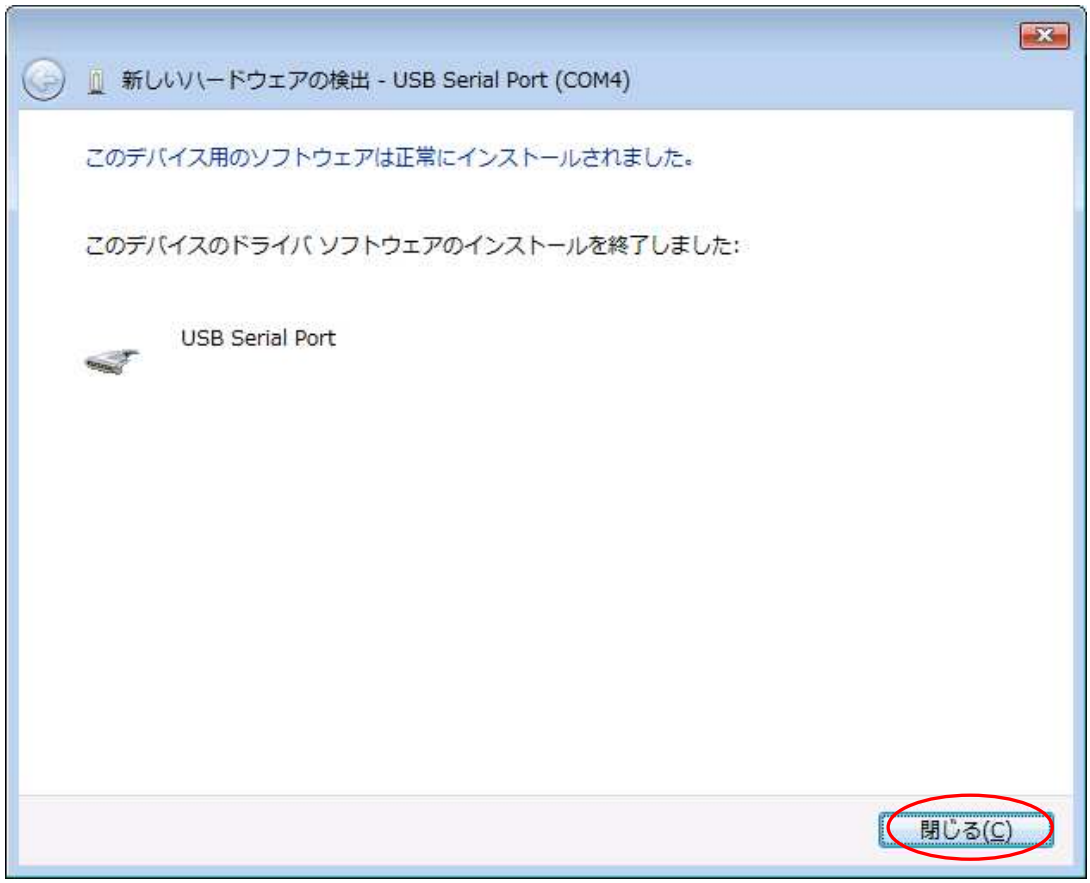
There is no problem. Click “Install driver software”.



The following screen will be displayed.



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



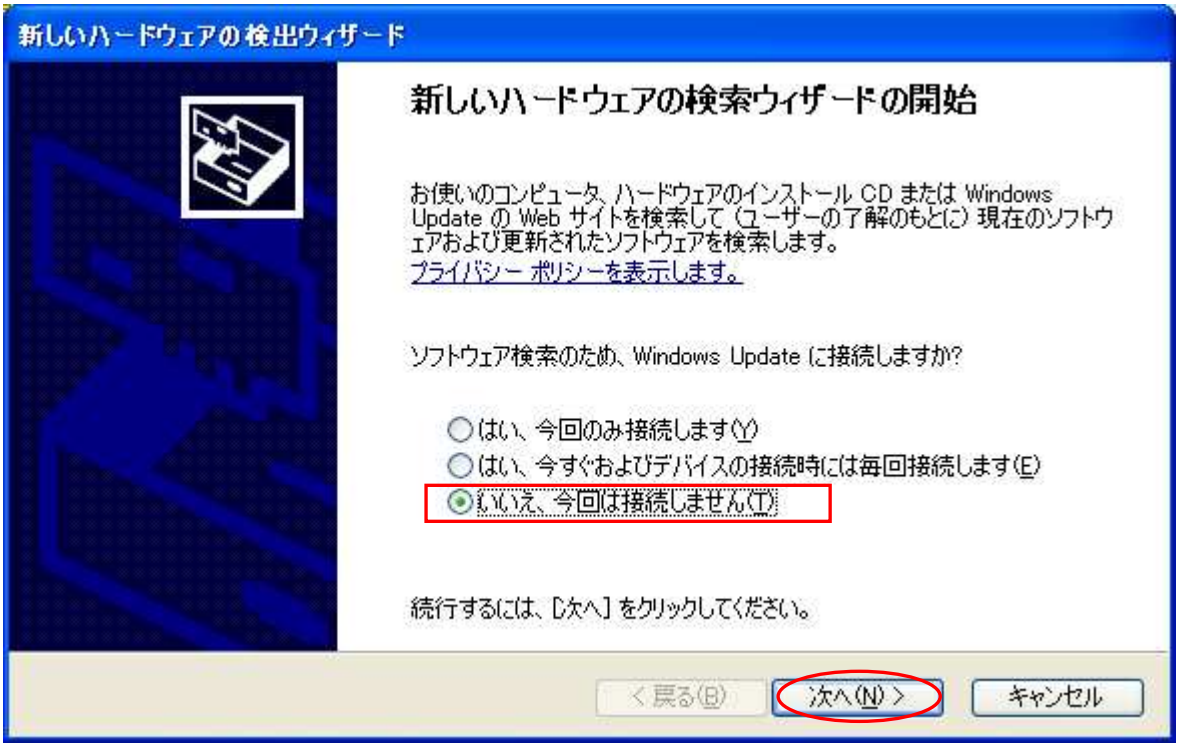
3.2.Windows XP/2000

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.

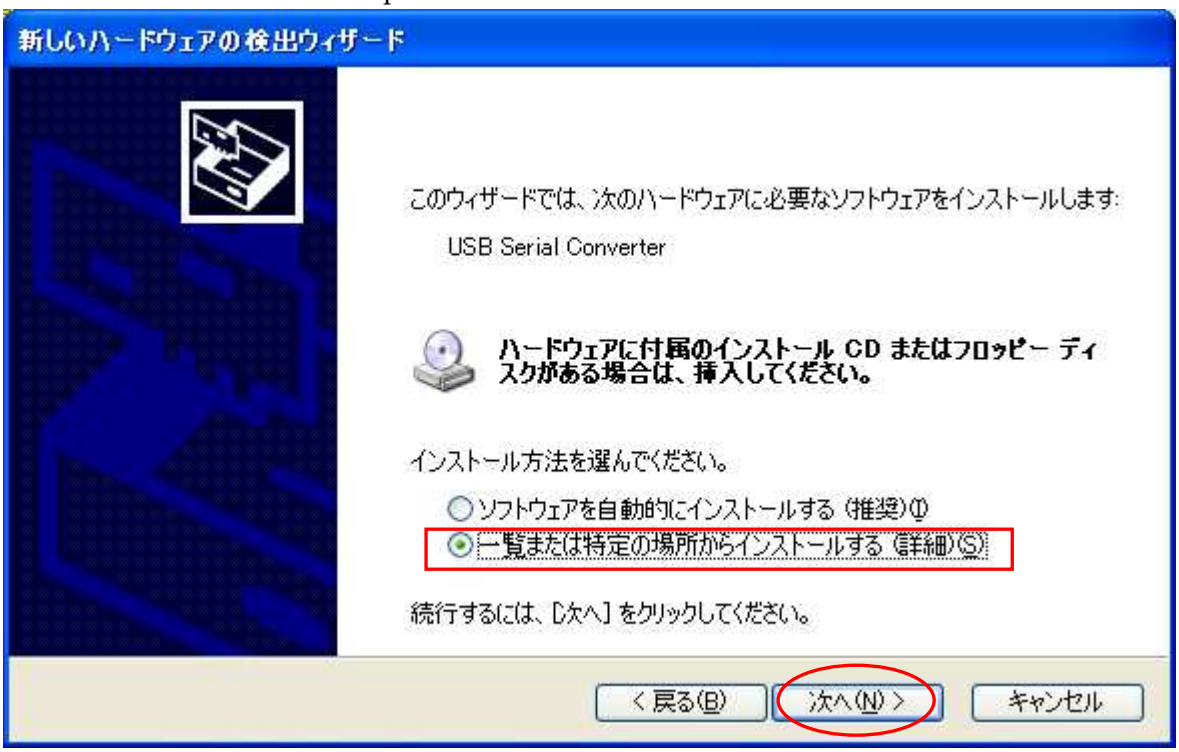
The “Device driver installation method” is explained as below. The display of sentences may differ depending on personal computer, it is basically the same.

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

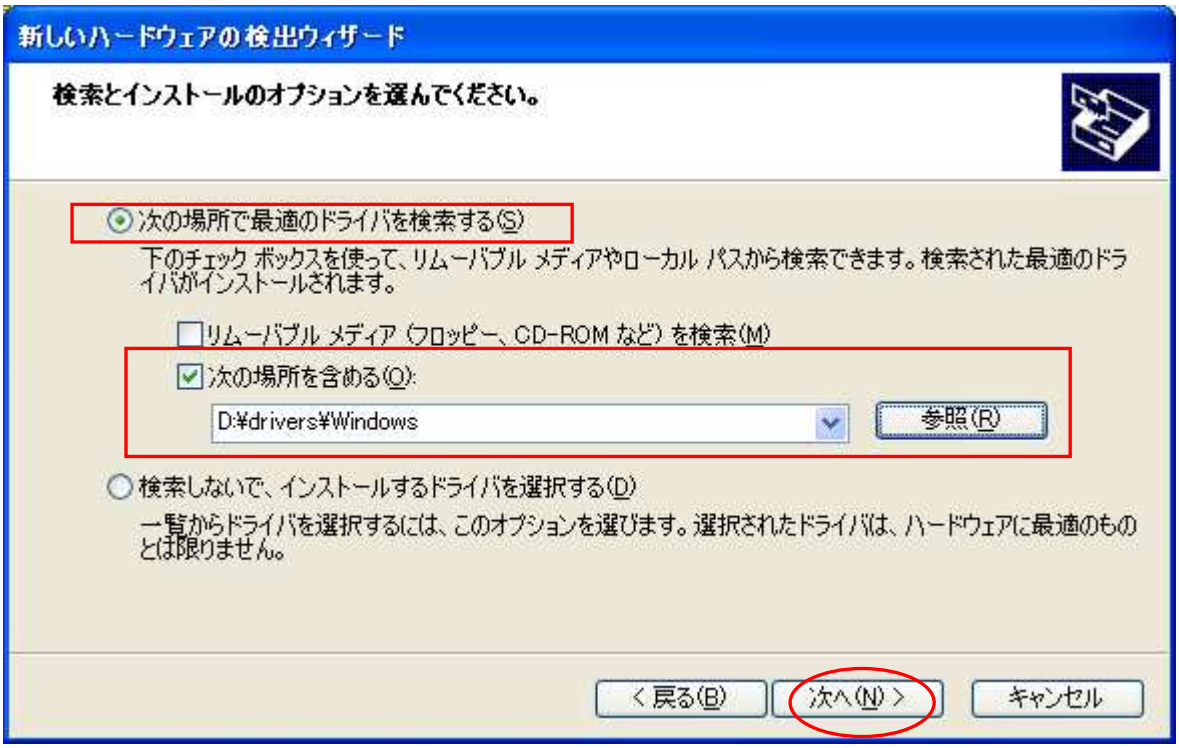


Select “No, it does not connect this time(T) and click “NEXT”.

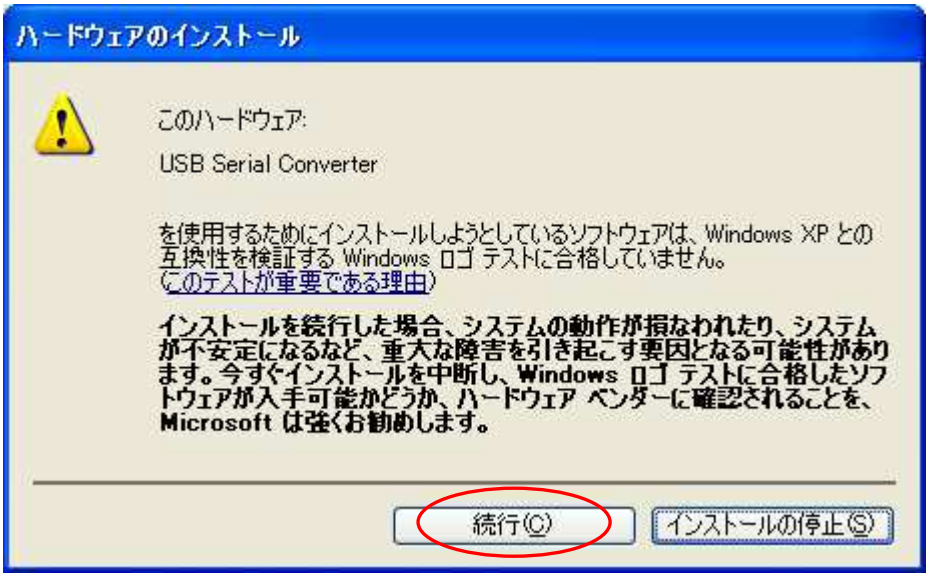
Select “Install from list or specific location” and click the “NEXT” button.



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.



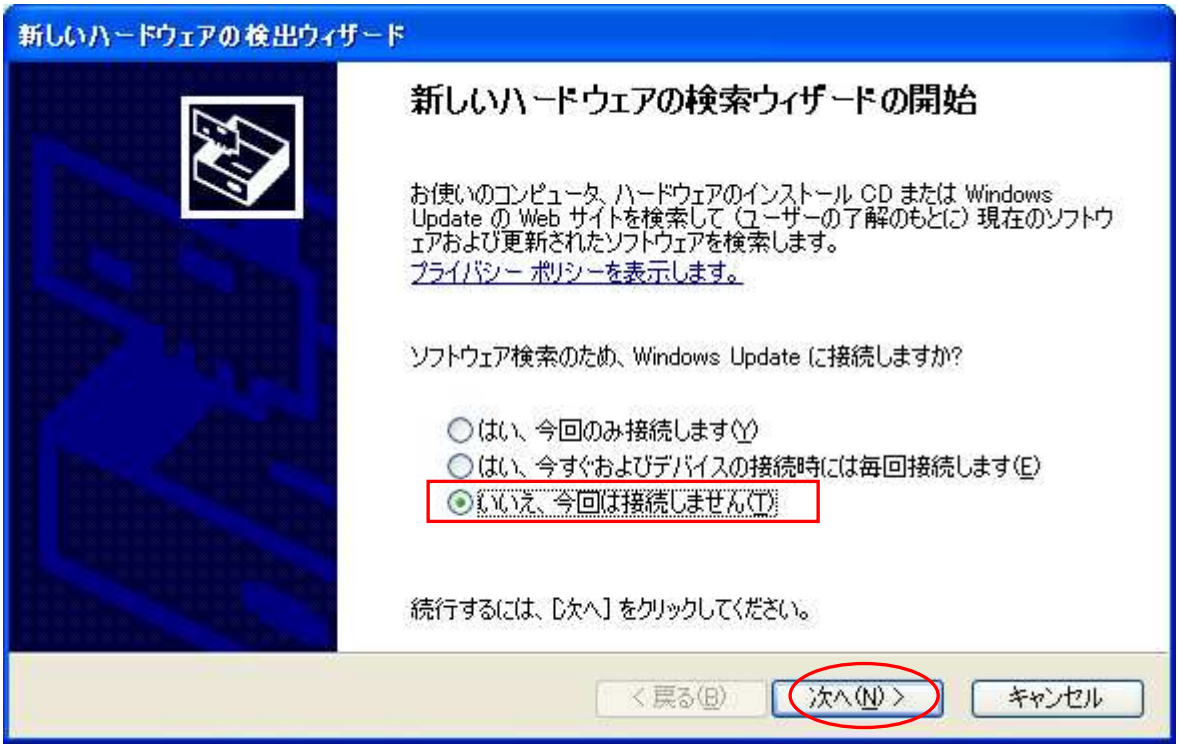
The following screen will be displayed (Only XP), but there is no problem click “Continue” button.



The following screen will be displayed.

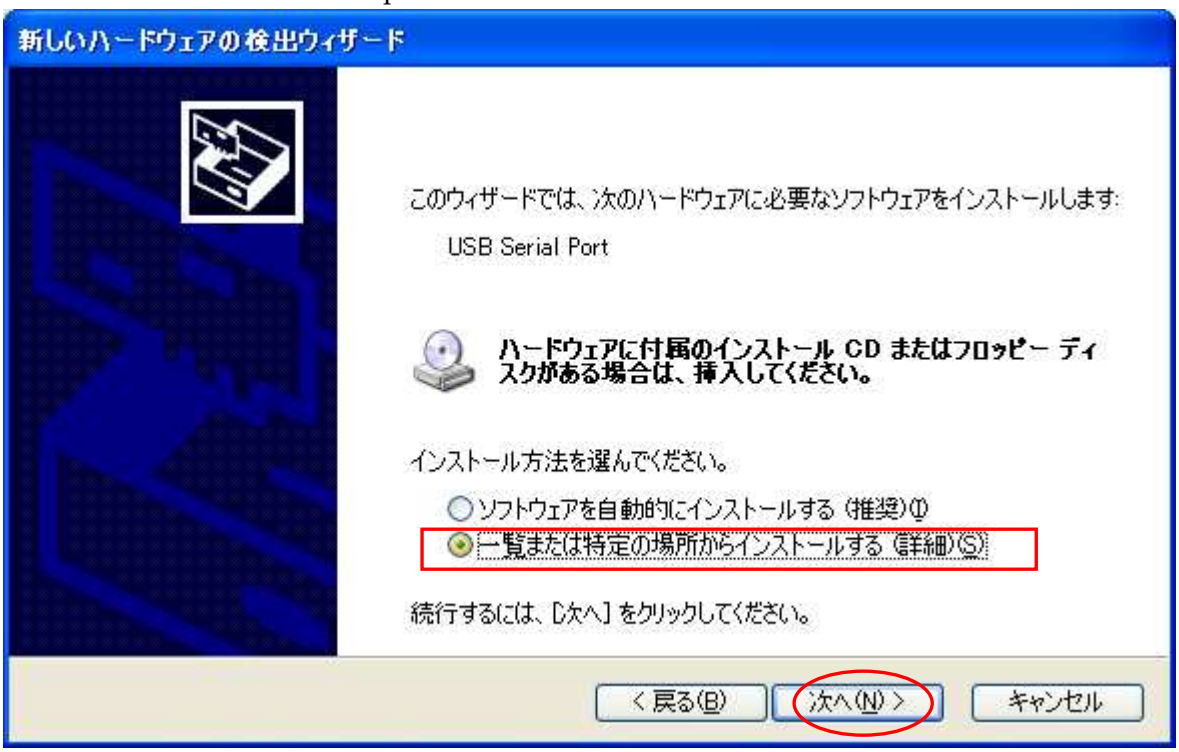
The following screen will be displayed when installation of the device driver is completed. Click “Finish” button.

The following screen will be displayed.

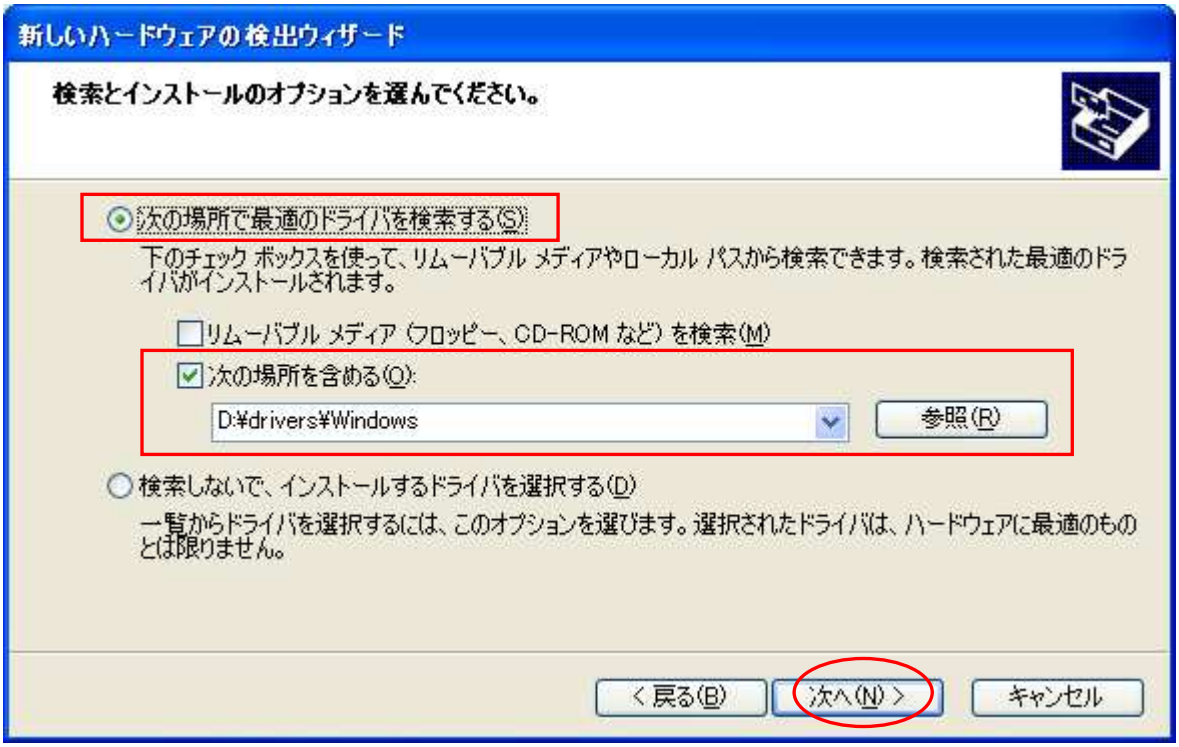


Select “No, it does not connect this time(T)” and click the “NEXT” button.

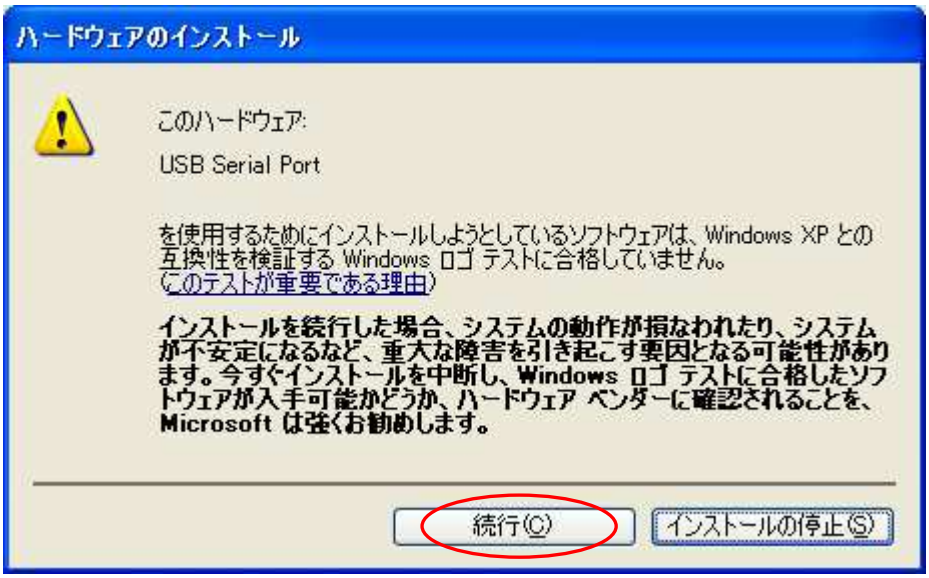
Select “Install from list or specific location” and click the “NEXT” button.



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



There is no problem click the “Continue” button.



The following screen will be displayed.

The following screen will be displayed when installation of the 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, there screen will not be displayed.

4.Operation

4.1.Preparation

ZS-6228-8N 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 input photocoupler, 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	:Colse the USB port.
FT_SetBitMode	:Set the I/O of the 8-bit port.
FT_SetBaudRate	:Set the rewrite time of 8 bits.
FT_GetBitMode	:Load 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 multipul 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 function.

- 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 tham "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(00), 0 : Input, 1 : Output
  Since "8 bits" are Photocoupler, set "00".

  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 × 16) = 6.51 μs 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_GetBitMode

- Function

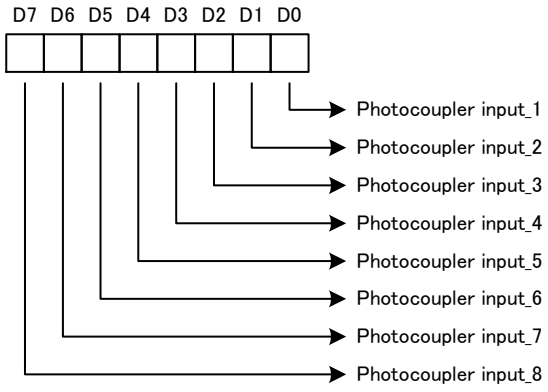
  Load photocoupler

- Format

  FT_Read (FT_HANDLE ftHandle, PUCHAR pucMode)

  ftHandle : Set the handle number

  pucMode : Set "1" when the photocoupler is ON, "0" is OFF, and execute Byte output. Bit assignments are as follows.



- Return value

  FT_OK : In case of "0", success

  Other than "0" : Error

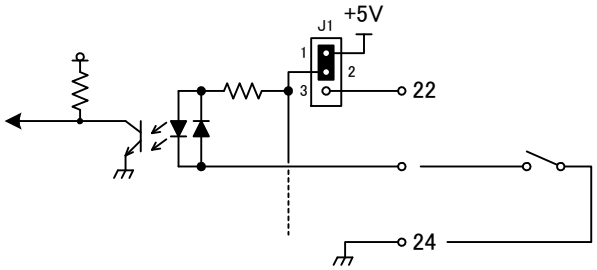
5.Connector

Connector （Connector 57LE-40240-7700-FA）

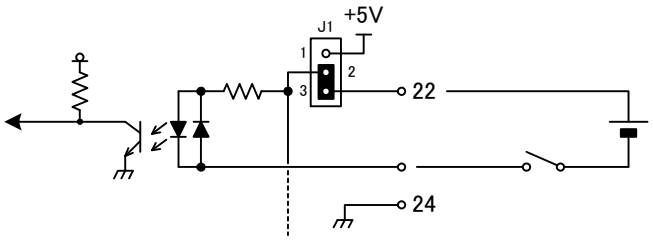
Signal	Pin No.		Signal
NC.	1	13	NC.
Photocoupler 1_IN−	2	14	Photocoupler 5_IN−
NC.	3	15	NC.
NC.	4	16	NC.
Photocoupler 2_IN−	5	17	Photocoupler 6_IN−
NC.	6	18	NC.
NC.	7	19	NC.
Photocoupler 3_IN−	8	20	Photocoupler 7_IN−
NC.	9	21	NC.
NC.	10	22	Ext IN(V or GND)
Photo coupler 4_IN−	11	23	Photo coupler 8_IN−
NC.	12	24	GND

Photocoupler input circuit

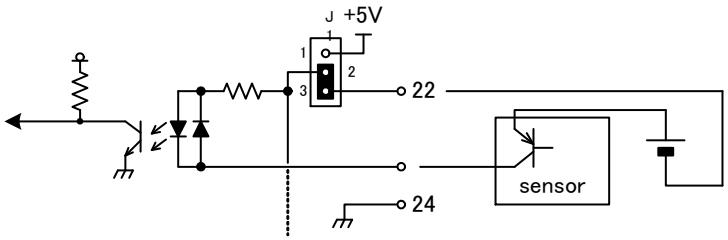
1. Internal＋5V circuit using power supply



2. Circuit used with Lo side input using external power supply



3. Circuit used with Hi side input using external power supply



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.