Preliminary

AMI305-AR16

140414 Edition

Project Name	AMI305－AR16
Specification Type	Basic Design / Detailed Design / Program Design Others (Operating instructions)
Function	Evaluation Kit
Date of Issue	2013/06/21
Date of Edit	2014/04/14

Approval	Approval	Author

Issued to	

Preliminary

Change Log

Version	Date of Change	Change Detail	Author
130621 Ver. Preliminary	2013/06/21	Initial issue	Mori
130904 Ver. Preliminary	2013/09/04	Changes to accommodate additional functions	Mori
130904 Ver. Preliminary	2014/04/14	FT232R driver install	Mori

Preliminary

Contents

Preliminary

1. To begin

This document describes the specifications and operating instructions for AMI305-AR16.

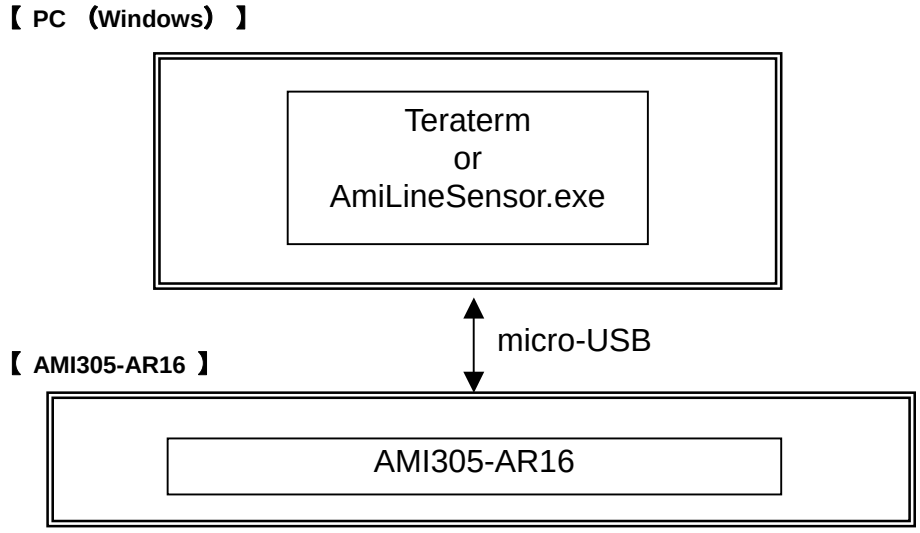
2. About AMI305-AR16

(1) List of Structures

No.	Element	Name	Detail	Reference
1	Application	Teraterm (Windows)	Sensor output, device control	This document
		AmiLineSensor.exe	Compensation calculations, sensor output	
2	Magnetometer	AMI305	Sensor	AMI305 delivery specifications

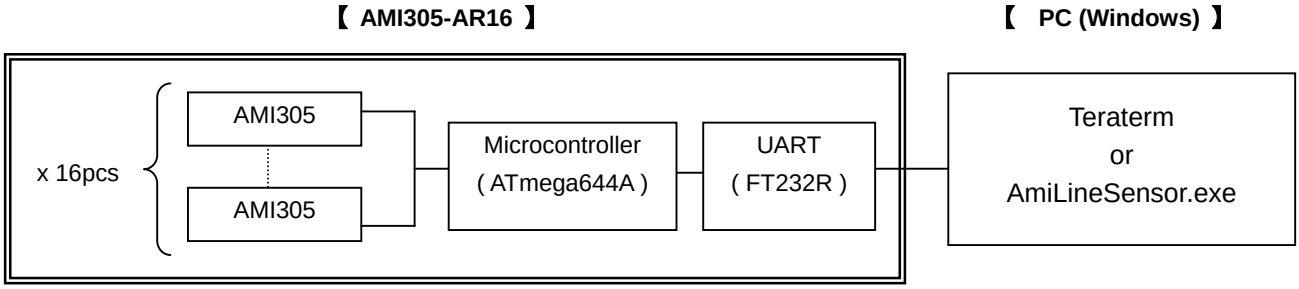
(2) Application Structure

AMI305-AR16 is capable of simultaneous measurement of 16 magnetometers and is controlled by Teraterm. In addition, by using AmiLineSensor.exe (higher level application) it is easy to visualize the change in output.

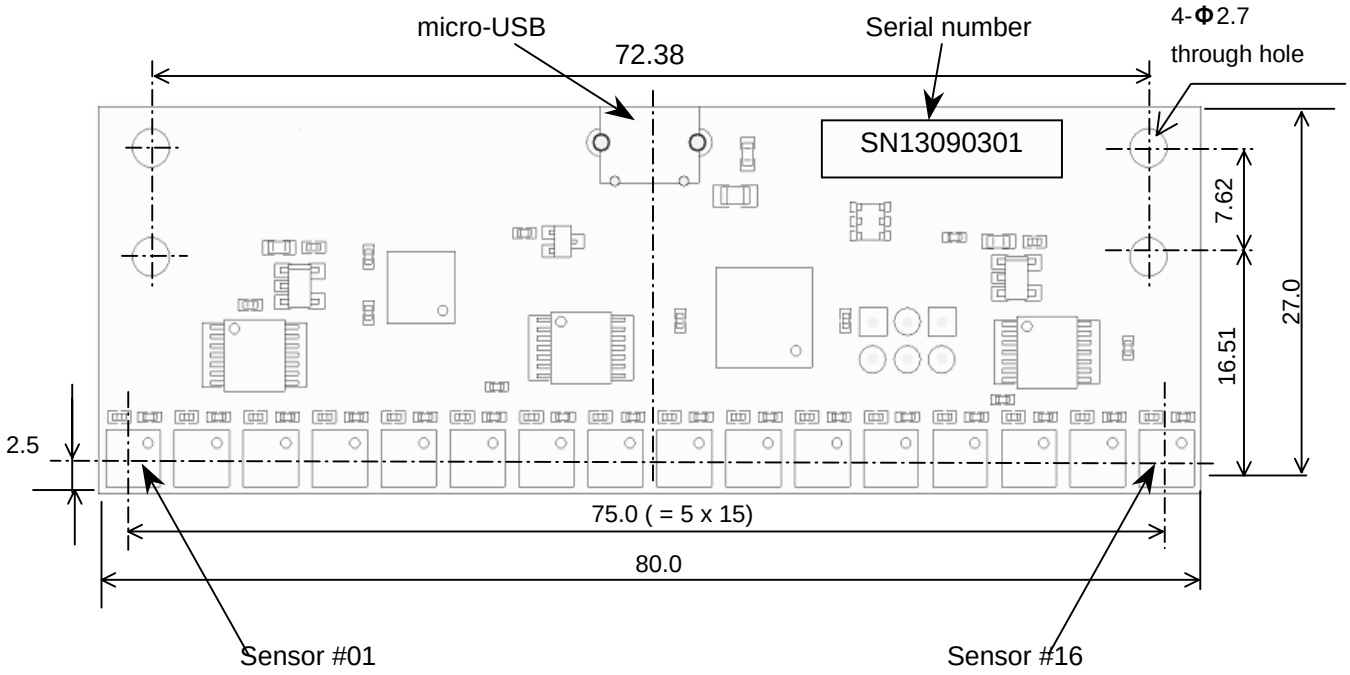


(3) Hardware structure

(3)-1Hardware block diagram

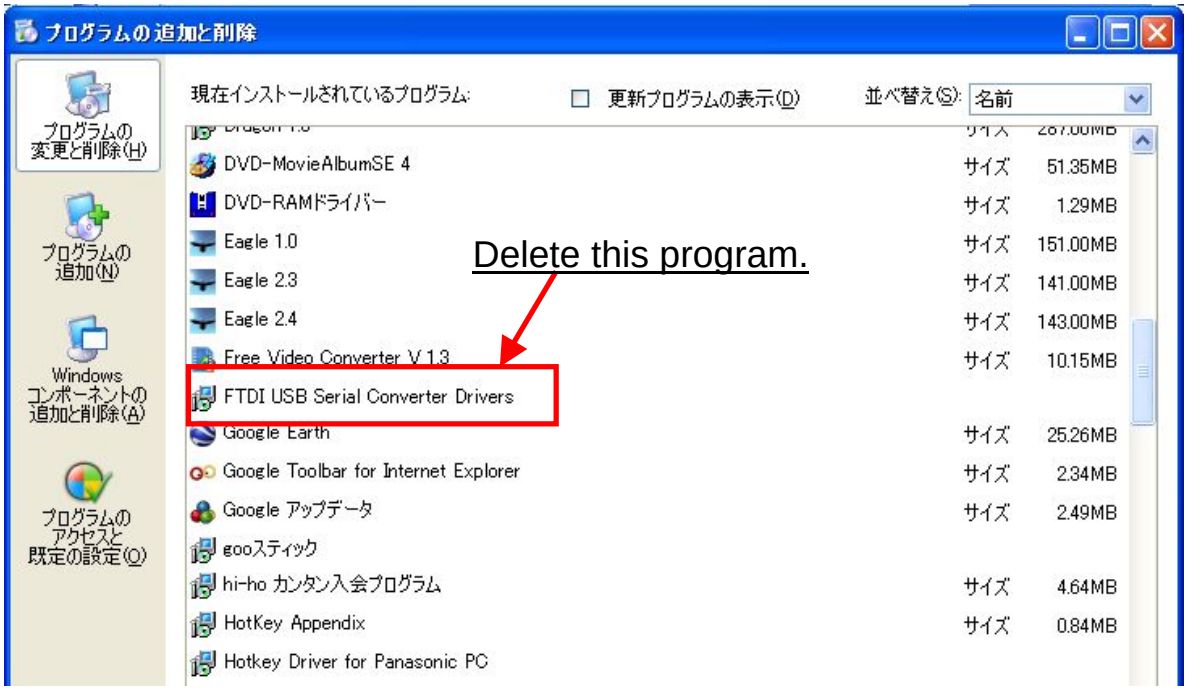


(3)-2 External diagram



3. Initial setting

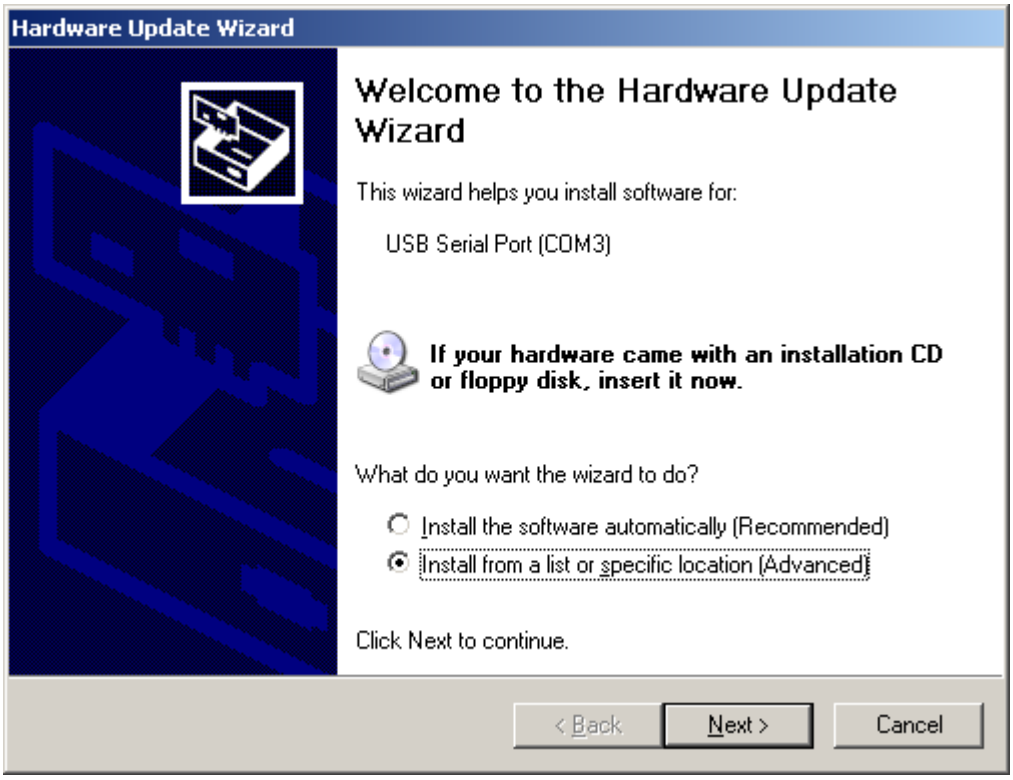
Step1) Delete old version of FTDI driver if installed.



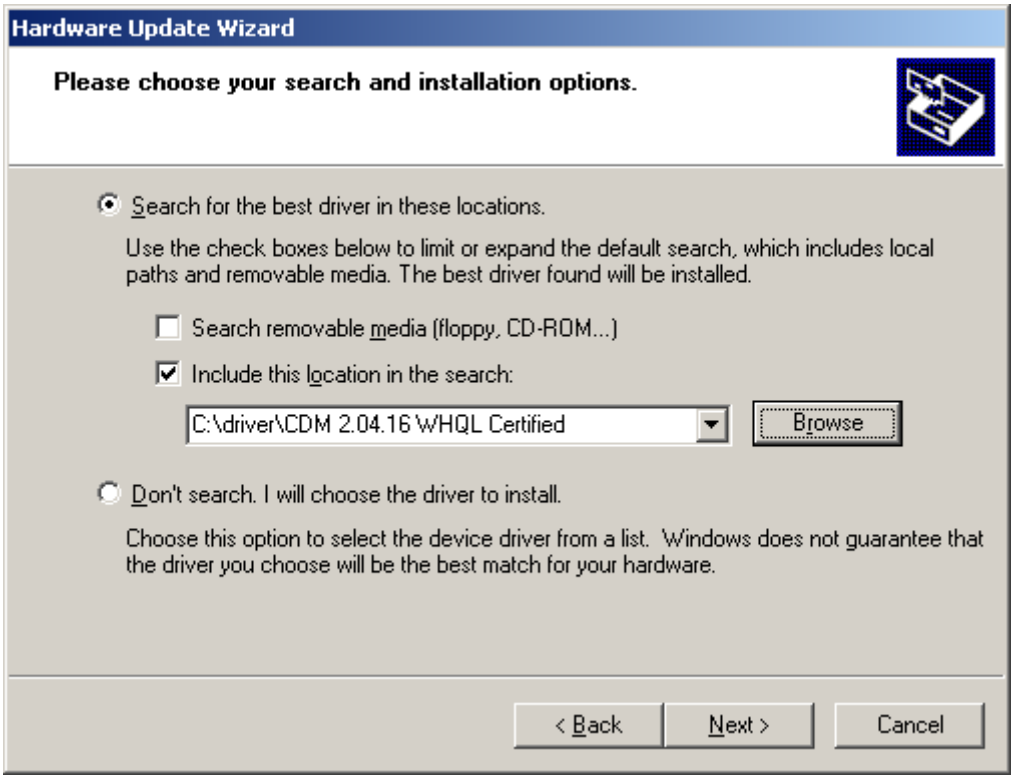
Note. Delete old driver by accessing Control Panel → 「Add and Remove Programs」

Step2) Install FT232R driver.

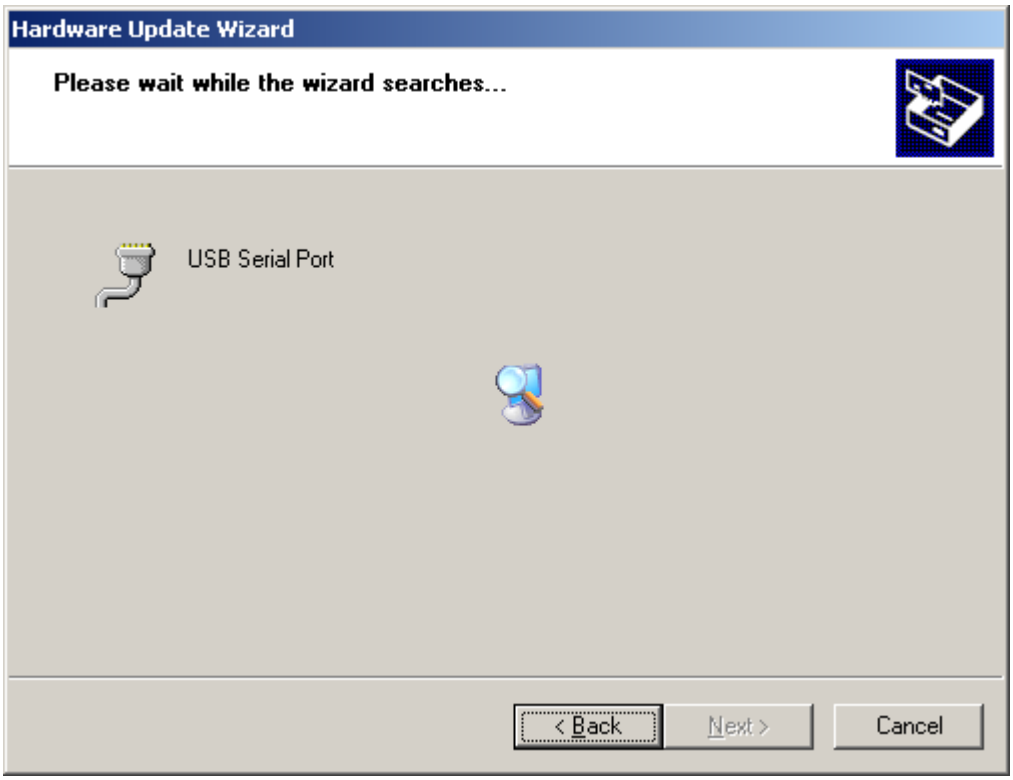
- Copy the FT232R driver file to C:¥drivers¥CDM 2.02.04 WHQL Certified
  http://www.ftdichip.com/Drivers/VCP.htm
- Connect the AMI305-AR16 to the PC with a USB cable.
- When the following window appears, select as shown and click Next.



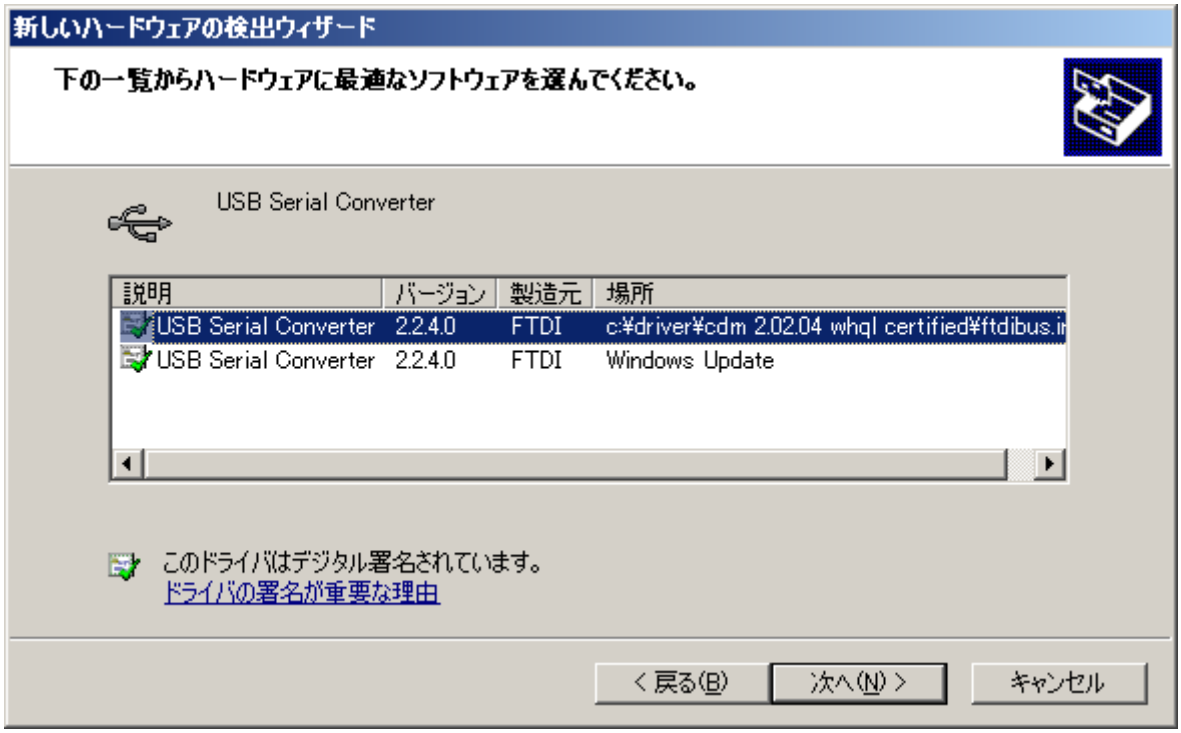
- When the following window appears, select the upper button and click Next after selecting the driver file.



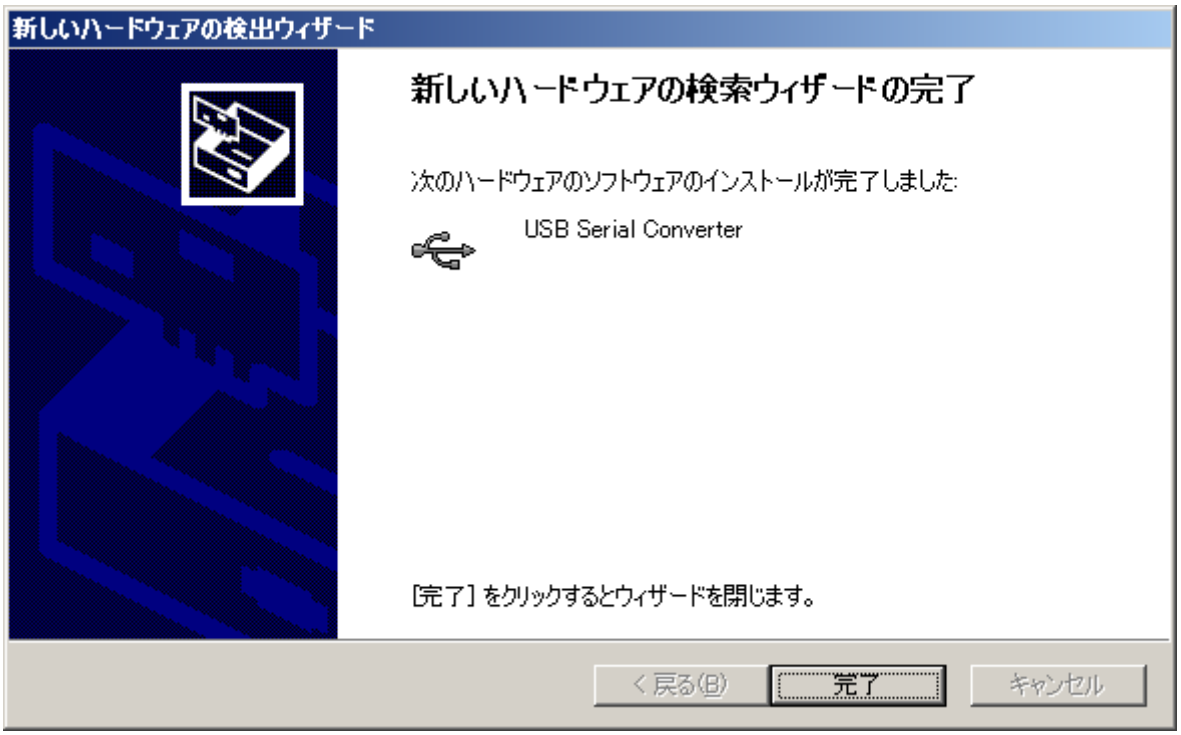
- When this following window appears, please wait.



- When this following window appears, select the upper option and then click Next.



- When the following window appears, click Finish.



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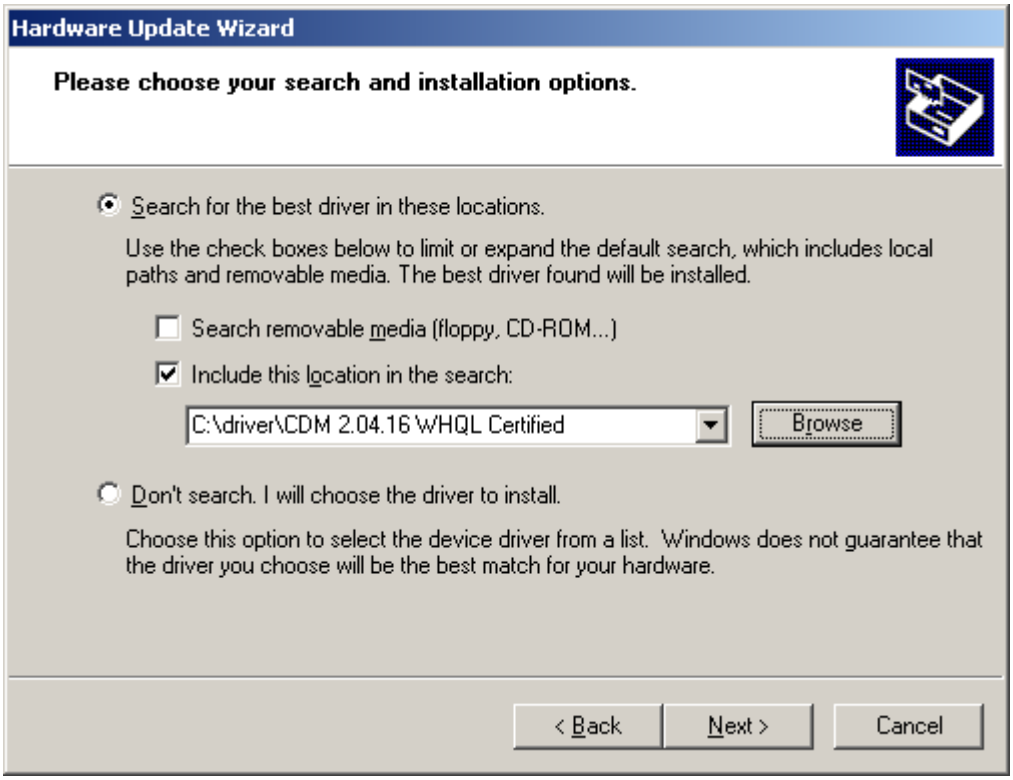
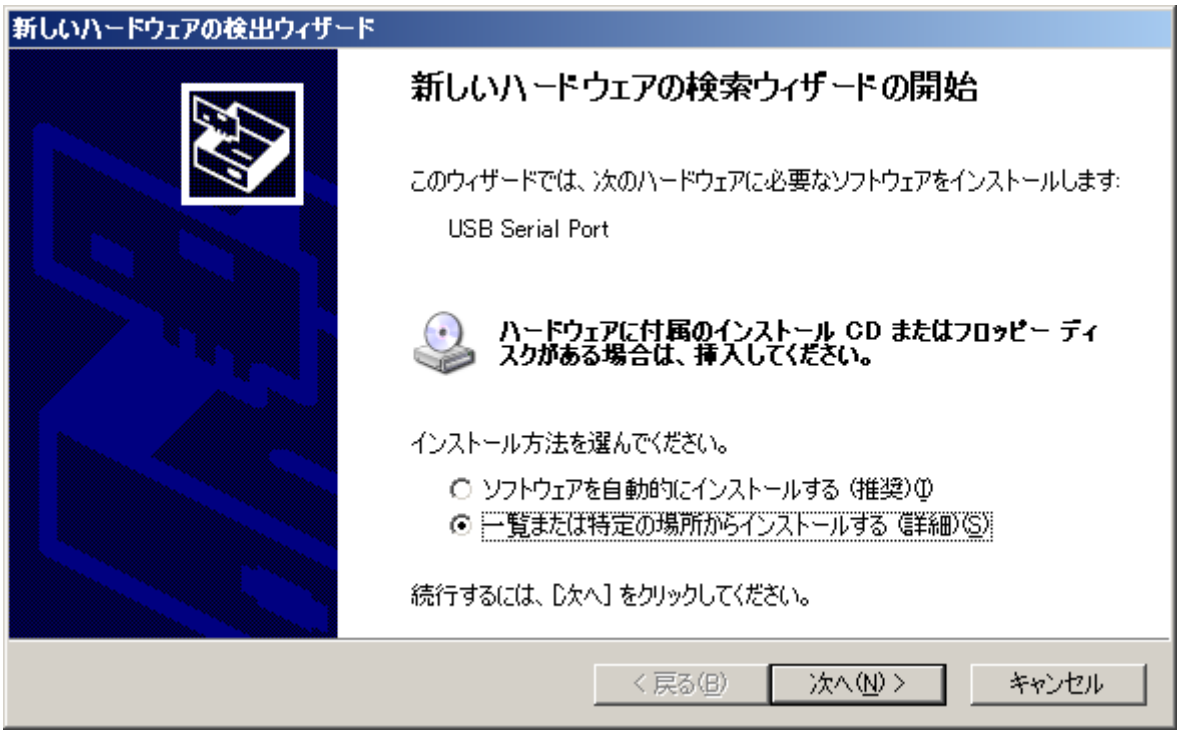
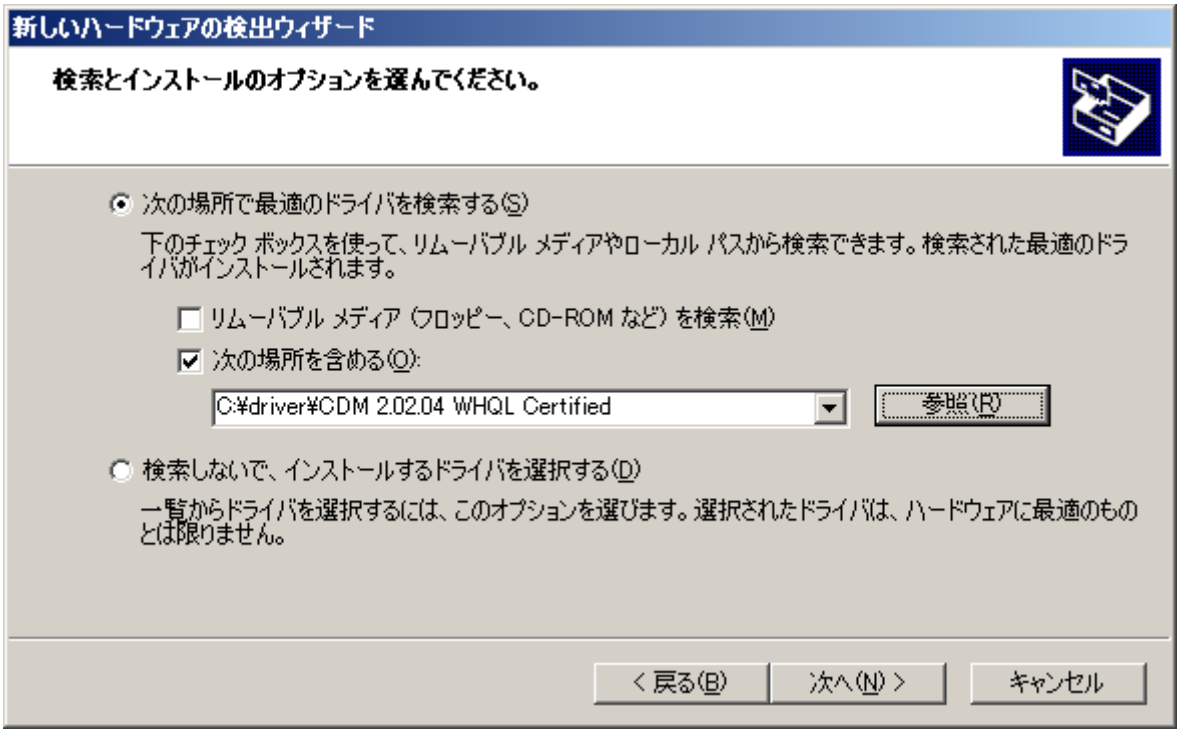


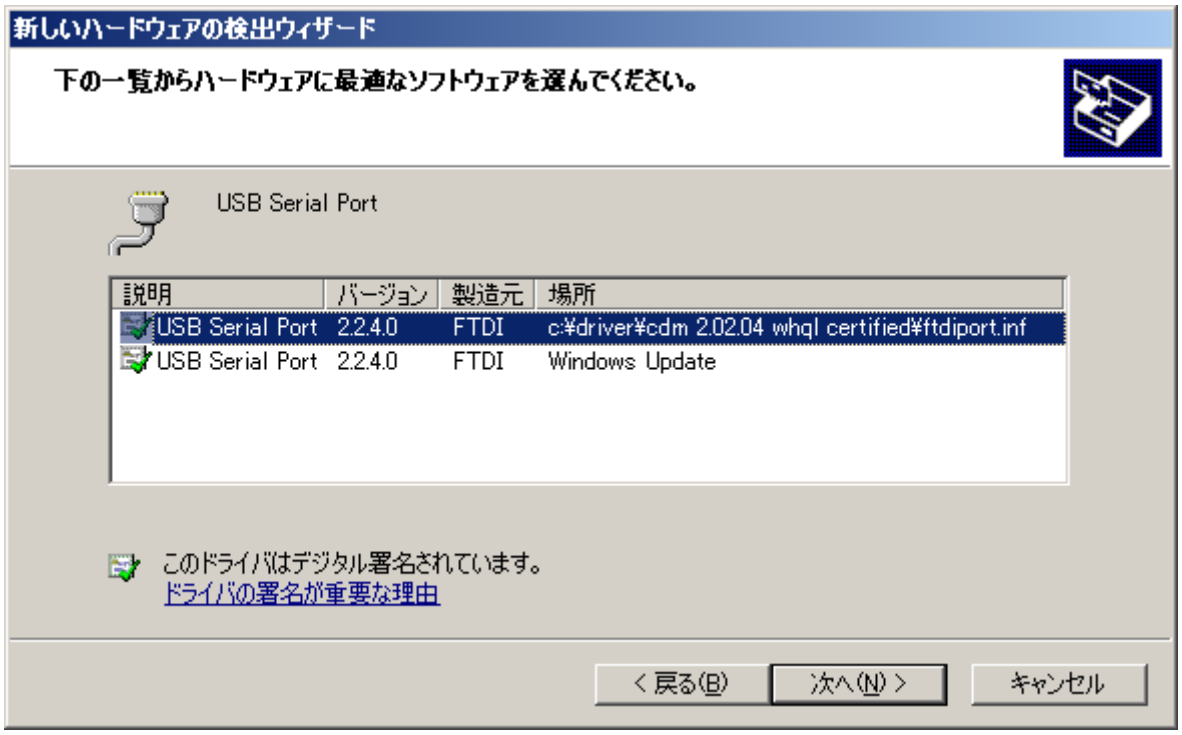
- When the following window appears, click Next.



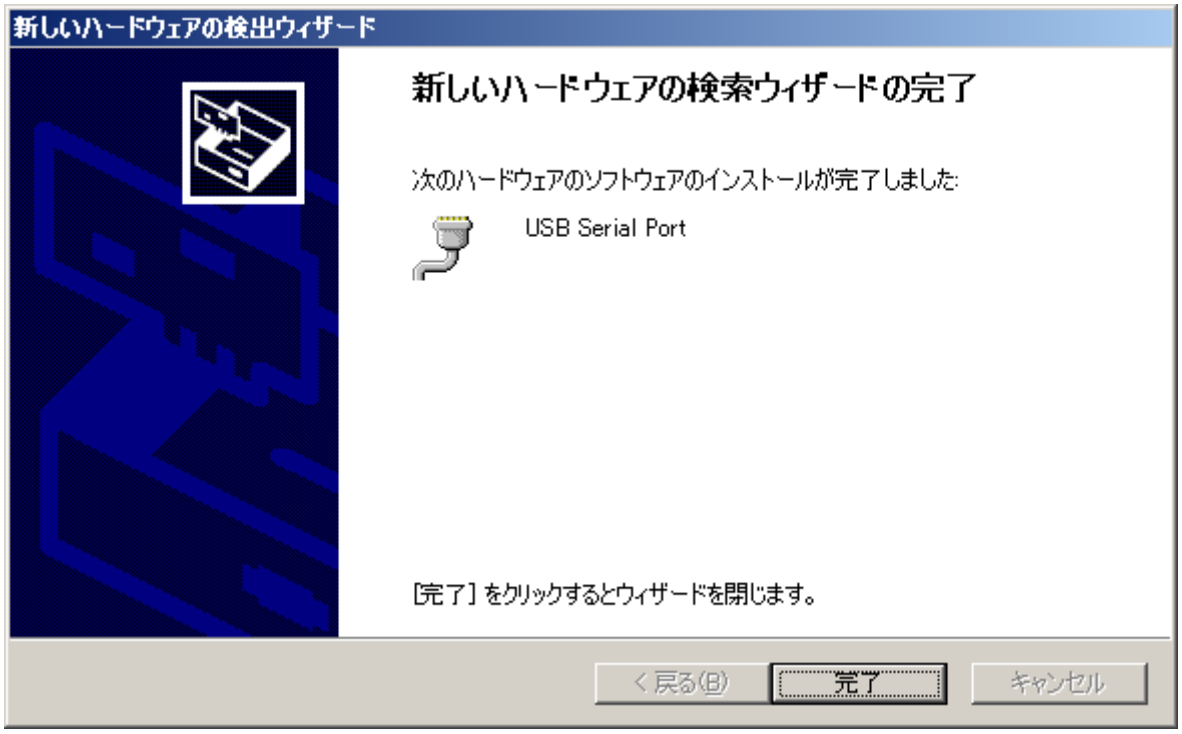
- When the following window appears, select the upper button, then select the driver file before clicking Next.



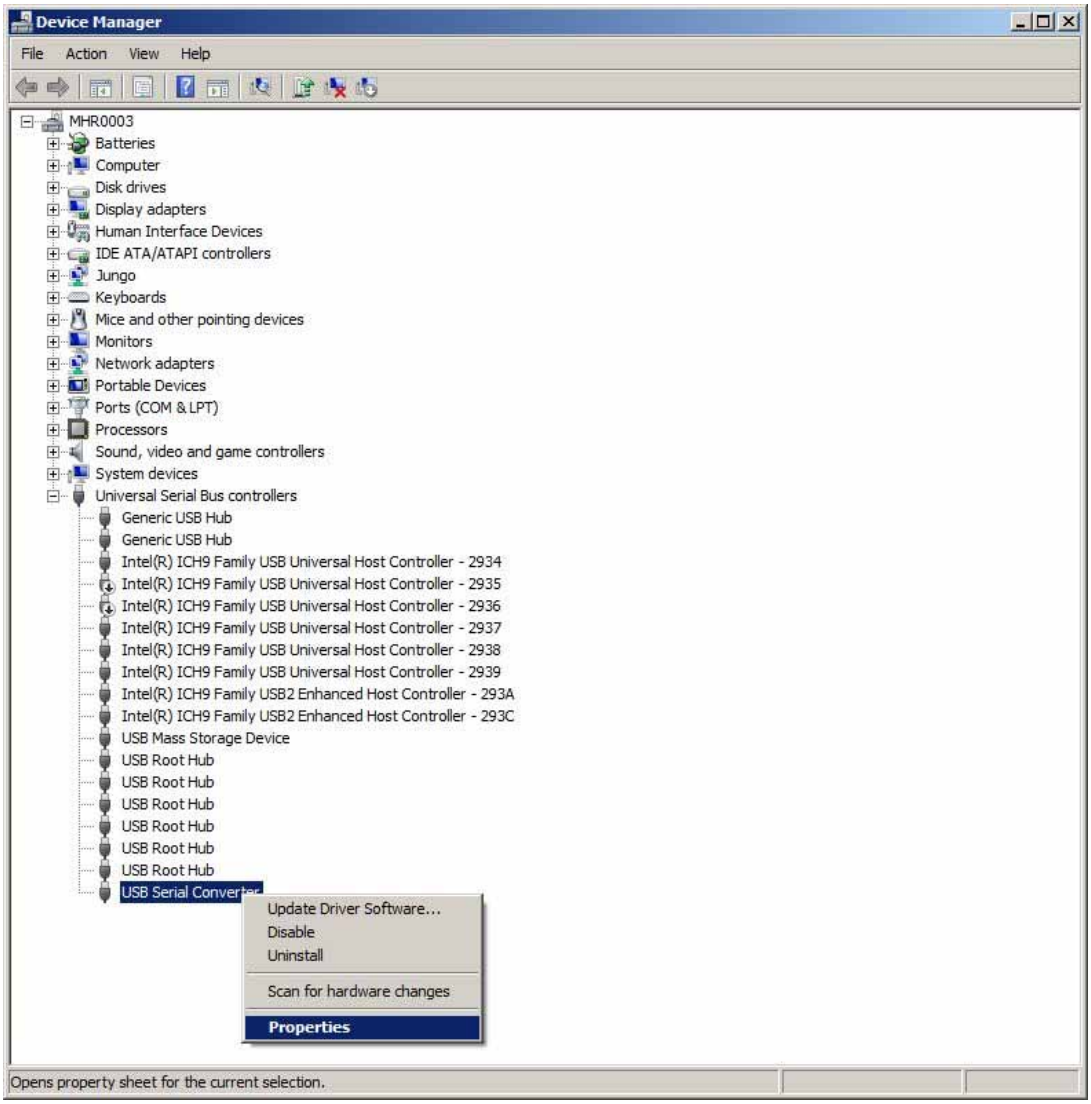
- When the following window appears, select the upper file location and click Next.



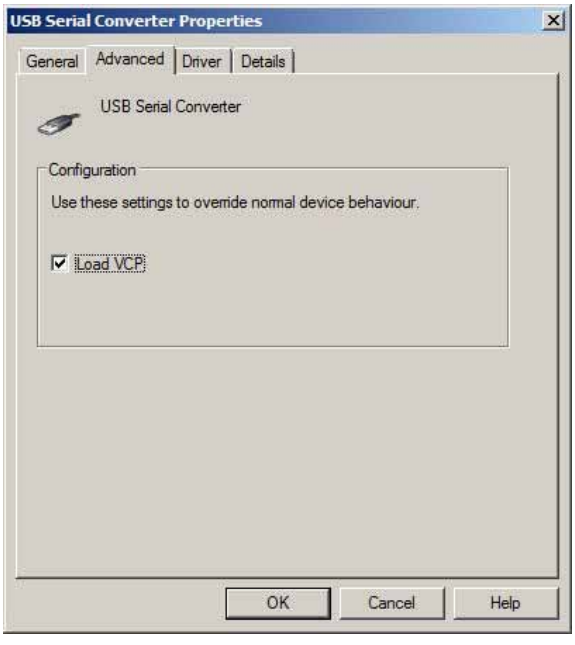
- When the following window appears, click Finish.



- Open Device Manager > USB controllers > USB Serial Converter > Properties



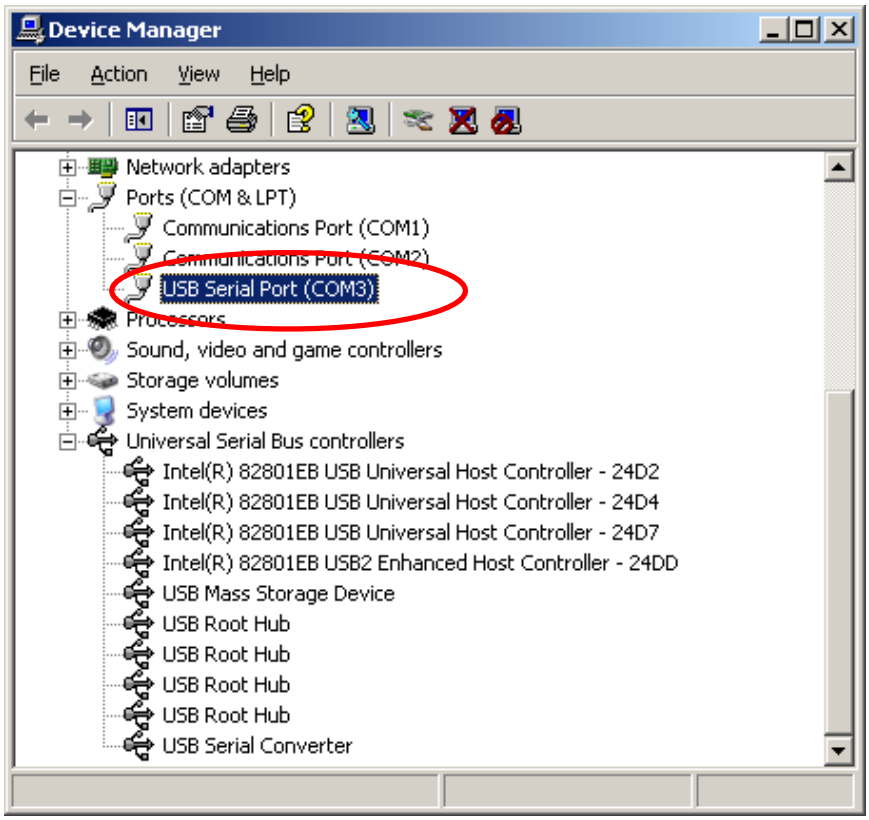
- Checked Load VCP and reconnect USB-cable



Step3) Confirm the COM Port number.

- Open Port (COM and LPT) in the Device Manager.

- Remember the COM number. In this case it is COM3.



4. Teraterm

4.1 Communication Specifications

① Interface USB2.0 or higher

② Application Teraterm (Windows)

③ Port setting

	Item	Specification
1	Bits/sec	1250000
2	Data bit	8
3	Parity	None
4	Stop bit	1
5	Flow control	None
6	Newline code	CR

④ Download link

http://en.sourceforge.jp/projects/ttssh2/releases/ 「teraterm-4.78.exe」

4.2 Command Specifications

4.2.1 Main commands

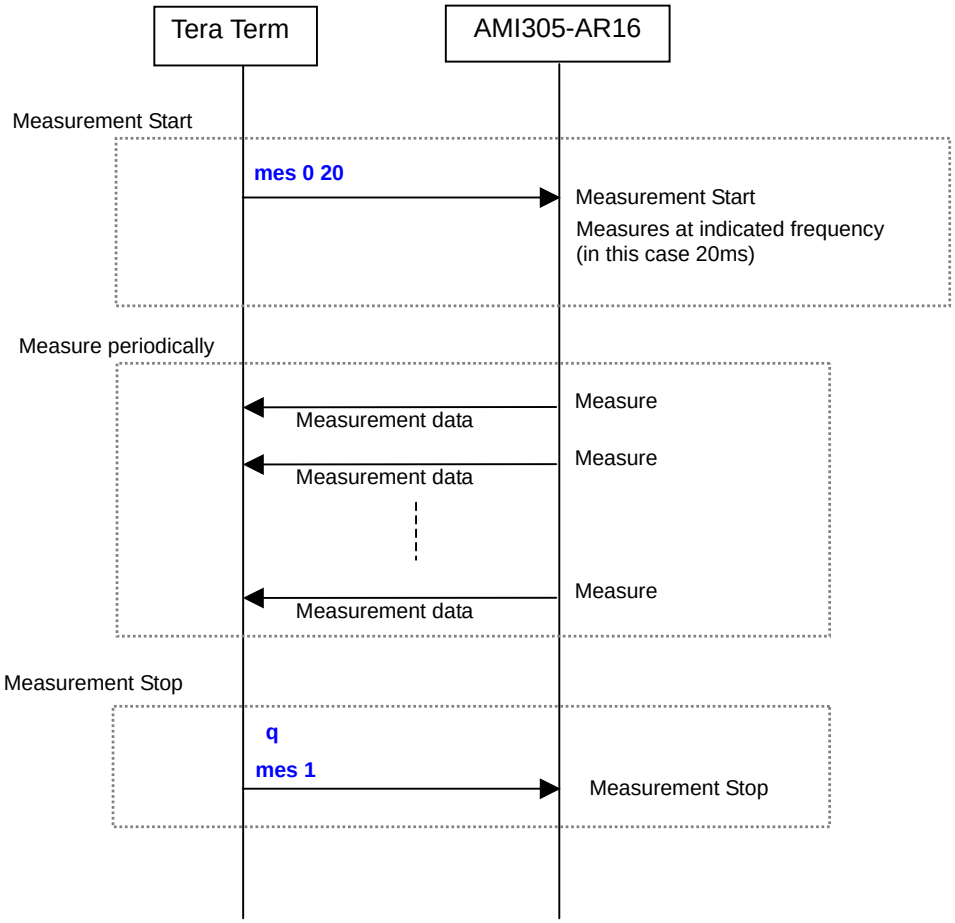
Detail	command	send parameter	receive parameter
Start measurement and measurement frequency setting (Measurement frequency is set with para2 argument.)	mes	Para1 : 0 Para2 : Measurement frequency 0-13: 13ms 14: 14ms ・・・ 254: 254ms	Para1: #01-X Mag (LSB) Para2: #01-Y Mag (LSB) Para3: #01-Z Mag (LSB) ・・・ Para47: #16-Y Mag (LSB) Para48: #16-Z Mag (LSB)
Stop measurement	mes	Para1:1	なし
Single measurement	mea	None	Para1: #01-X Mag (LSB) Para2: #01-Y Mag (LSB) Para3: #01-Z Mag (LSB) ・・・ Para47: #16-Y Mag (LSB) Para48: #16-Z Mag (LSB)
Obtain Serial number	sng	None	Para1: #01-Serial Number Para2: #02- Serial Number ・・・ Para16: #16- Serial Number
Make ready to receive command (Pauses serial data output)	q	None	None
Exit from ready to receive command status	c	None	None

4.2.1 Main commands (cont)

Detail	command	send parameter	receive parameter
Carry out single measurement.	mea	None	Para1: #01-X Mag (LSB) Para2: #01-Y Mag (LSB) Para3: #01-Z Mag (LSB) ‘ ‘ ‘ Para47: #16-Y Mag (LSB) Para48: #16-Z Mag (LSB)
Obtain calibrated output	eca	None	None
Obtain uncalibrated output	dca	None	None

Note1) By sending 「eca」 command, it is possible to obtain calibrated magnetic outputs.
The angle of axial interference is +/-1degree, sensitivity is 1000LSB/gauss +/-2% .

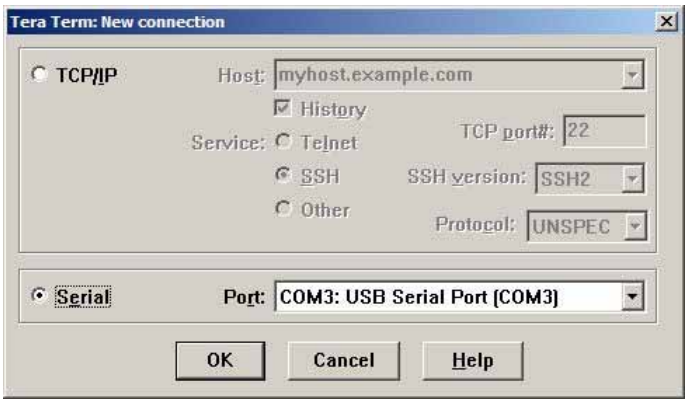
4.2.3 Sequence example



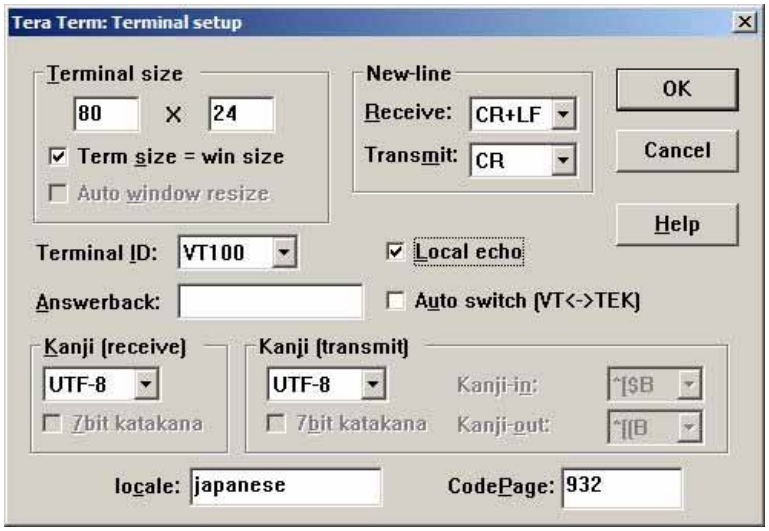
4.3 Communication Setting

Step1) Start TeraTerm

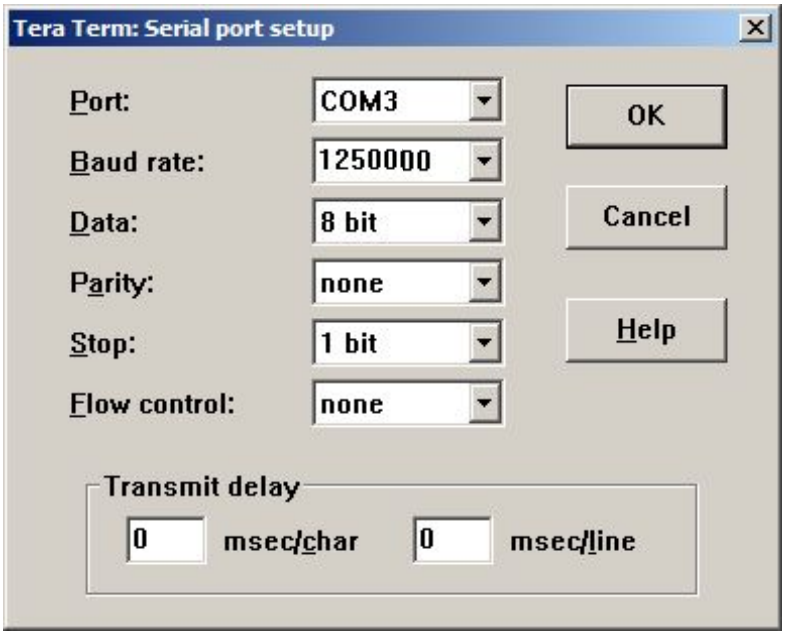
Step2) Select Serial – Port



Step3) Setup – Terminal as shown below



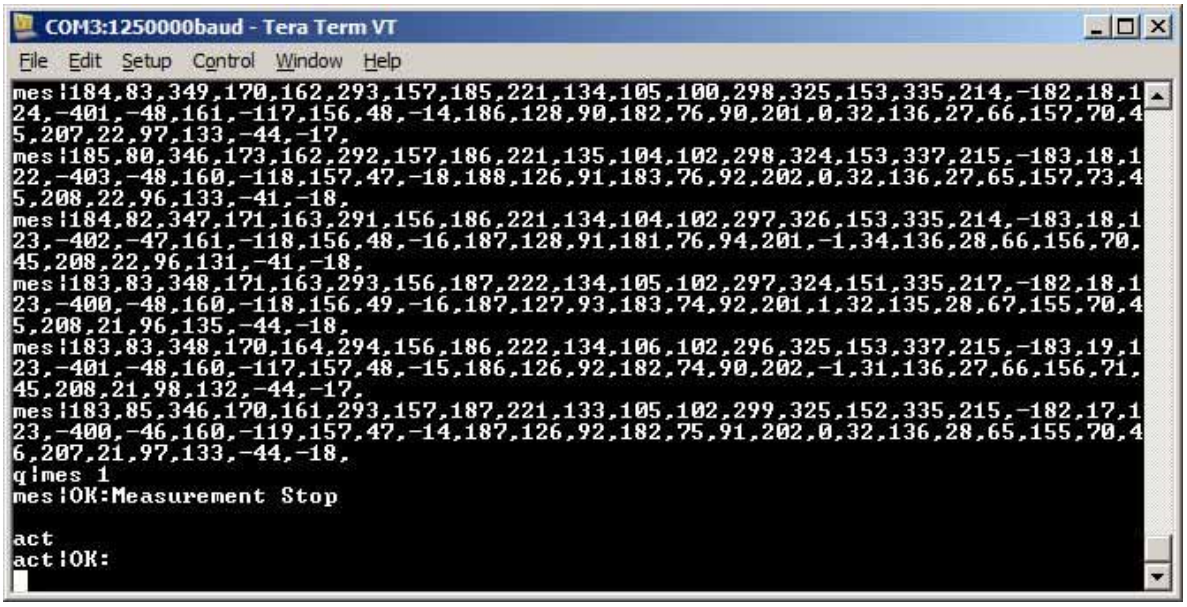
Step4) Setup – Serialport as shown below



Communication Settings

Item	Value
Bit/sec	1250000
Data bit	8
Parity	None
Stop bit	1
Flow control	None

Step5) Input『mes 0 20』and press Enter to start measurement at 20ms
Step6) Input『q』and press Enter to pause measurement
Step7) Input『mes 1』and press Enter to stop measurement



4.4 Data Specification

(1) Data format

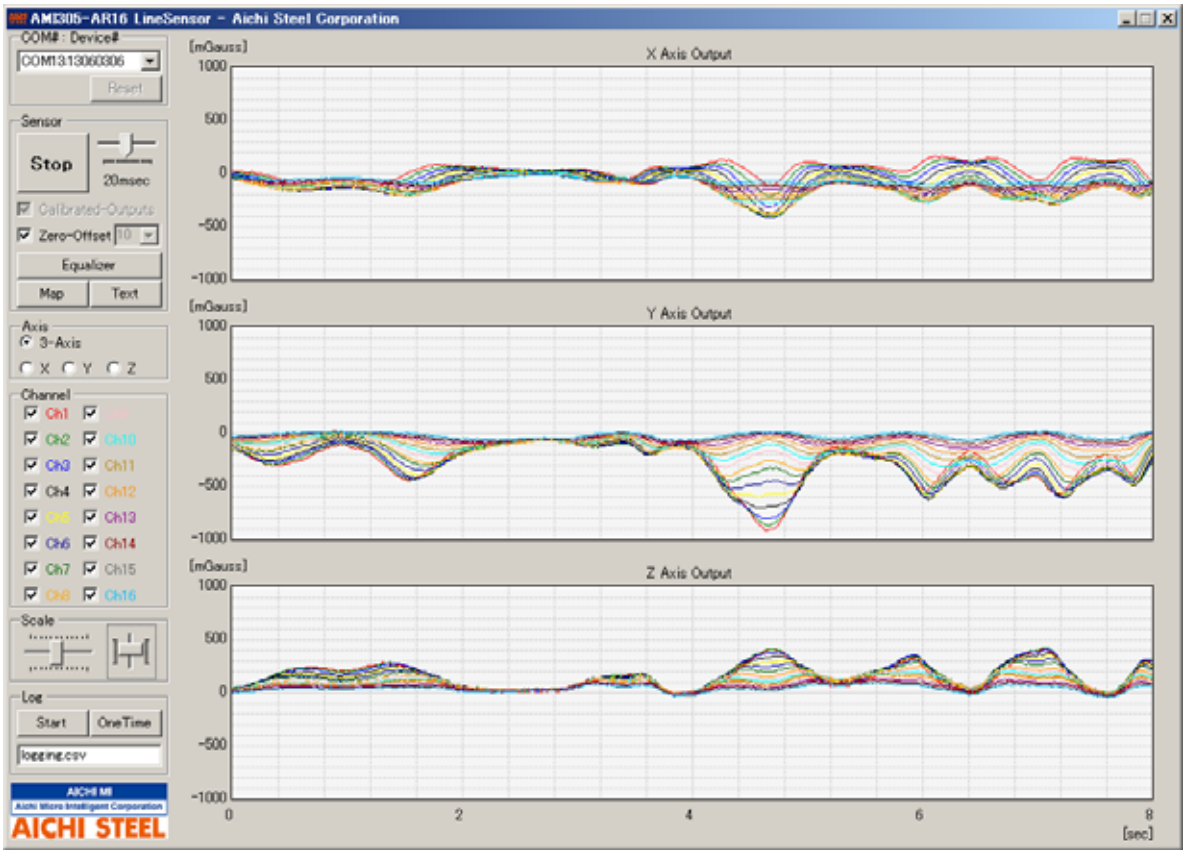
The default data format is as follows

No.	1	2	3	4	5	...	47	48
Item	#01 X-axis Mag (※1)	#01 Y-axis Mag (※1)	#01 Z-axis Mag (※1)	#01 X-axis Mag	#02 Y-axis Mag		#16 Y-axis Mag	#16 Z-axis Mag
unit	LSB							

(※1) Refer to AMI305 Specification for polarity.
http://www.aichi-mi.com/old_pages/3_products/121223_AMI305_Spec_preliminary_E.pdf

5. Application 「AmiLineSensor.exe」

Use this application to visualize the outputs of AMI305-AR16 in real time.



「AmiLineSensor.exe」 Full screen display

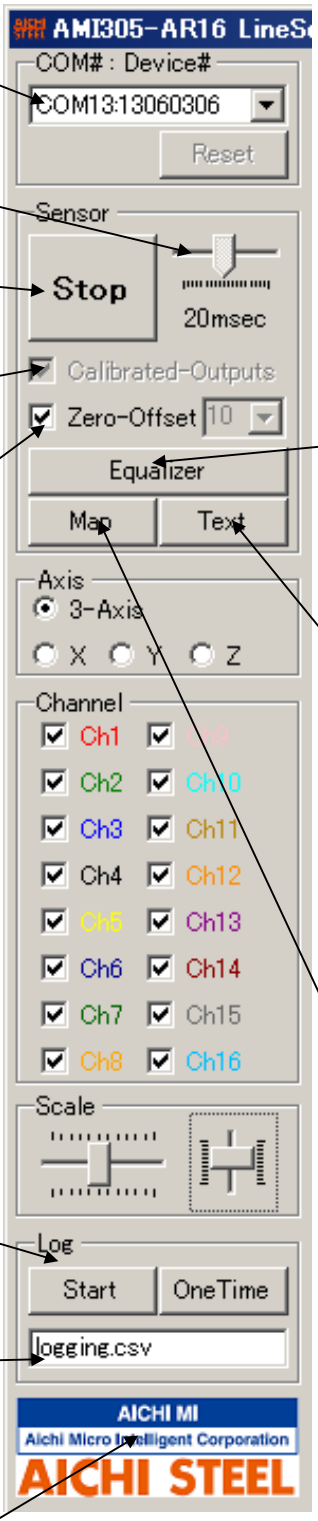
Select sensor

Change sample-rate

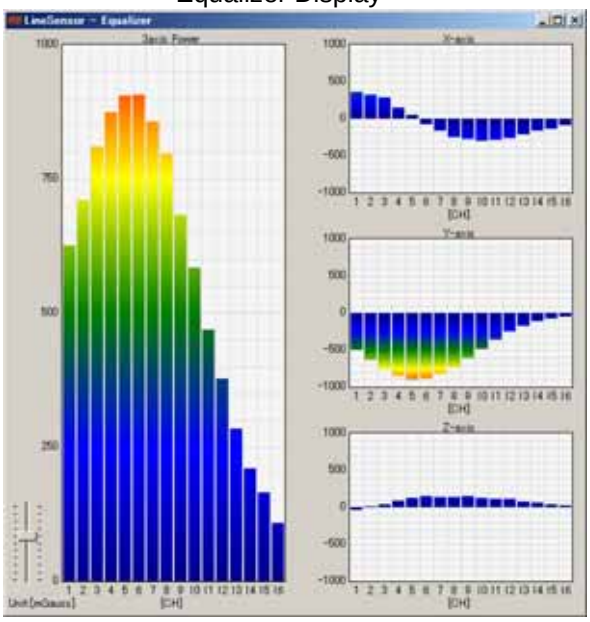
Start measurement

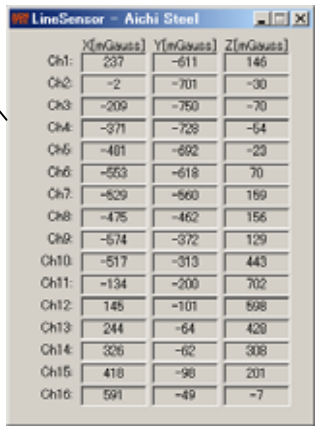
Select calibrated output

Sets first output to zero at the start of measurement. Figure to the left indicates averaging rate. 10 is recommended.



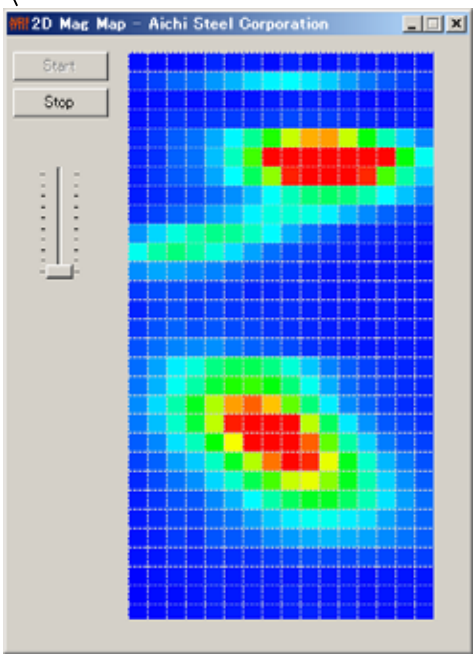
Equalizer Display





Text Display

2D Magnetic distribution display



Output measured values to file.

Name of output file

Polarity diagram