

<p>AMI305-AR16</p> <p><u>140414 Edition</u></p>

Project Name	AMI305 - AR16
Specification Type	Basic Design / Detailed Design / Program Design Others (Operating instructions)
Function	Evaluation Kit
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Issued to	
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1. To begin

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

2. About AMI305-AR16

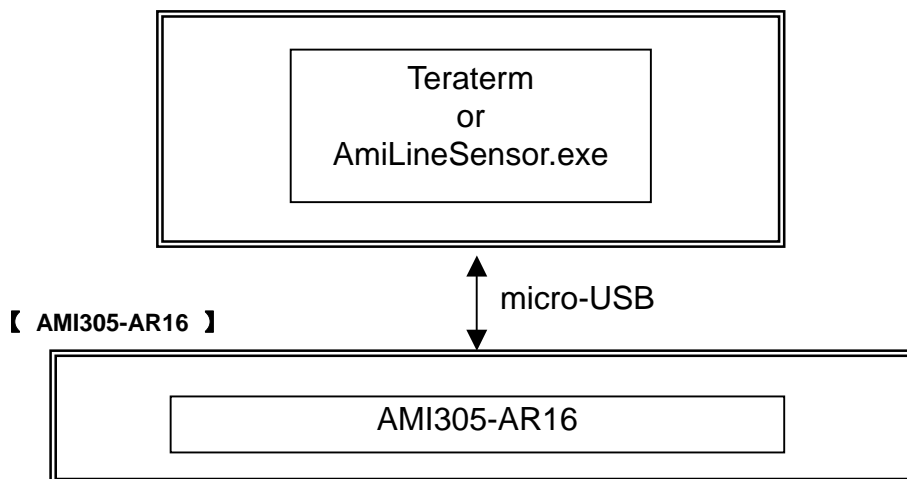
(1) List of Structures

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.

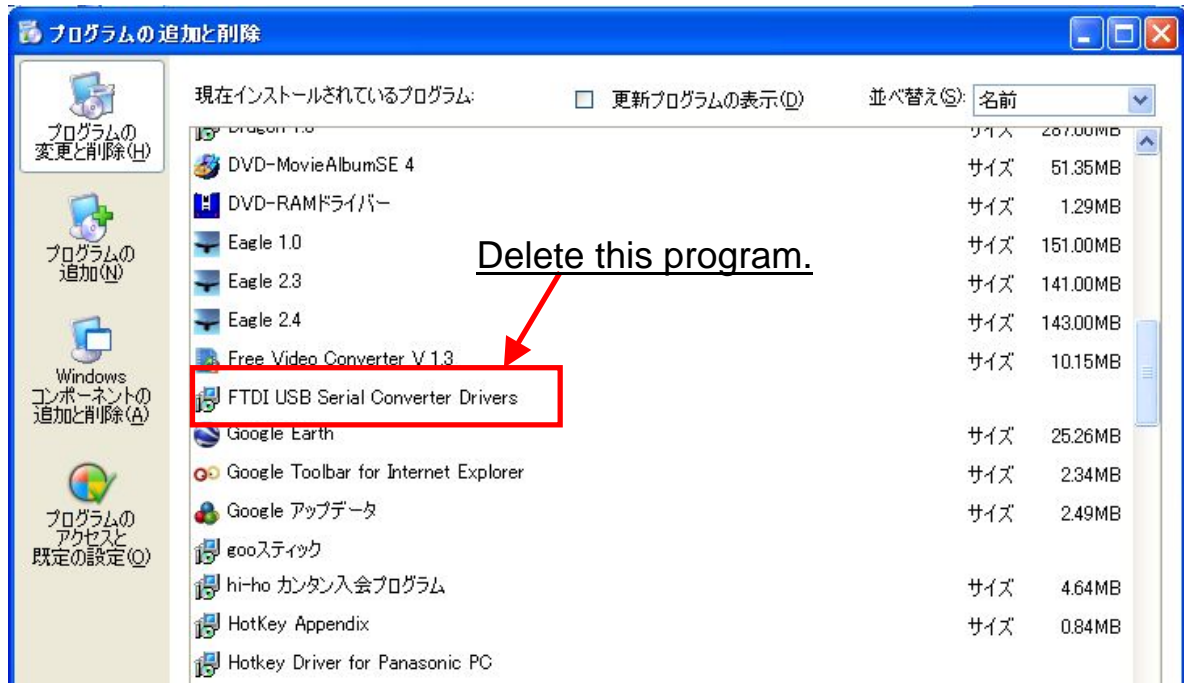
【 PC (Windows) 】



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3. Initial setting

Step1) Delete old version of FTDI driver if installed.

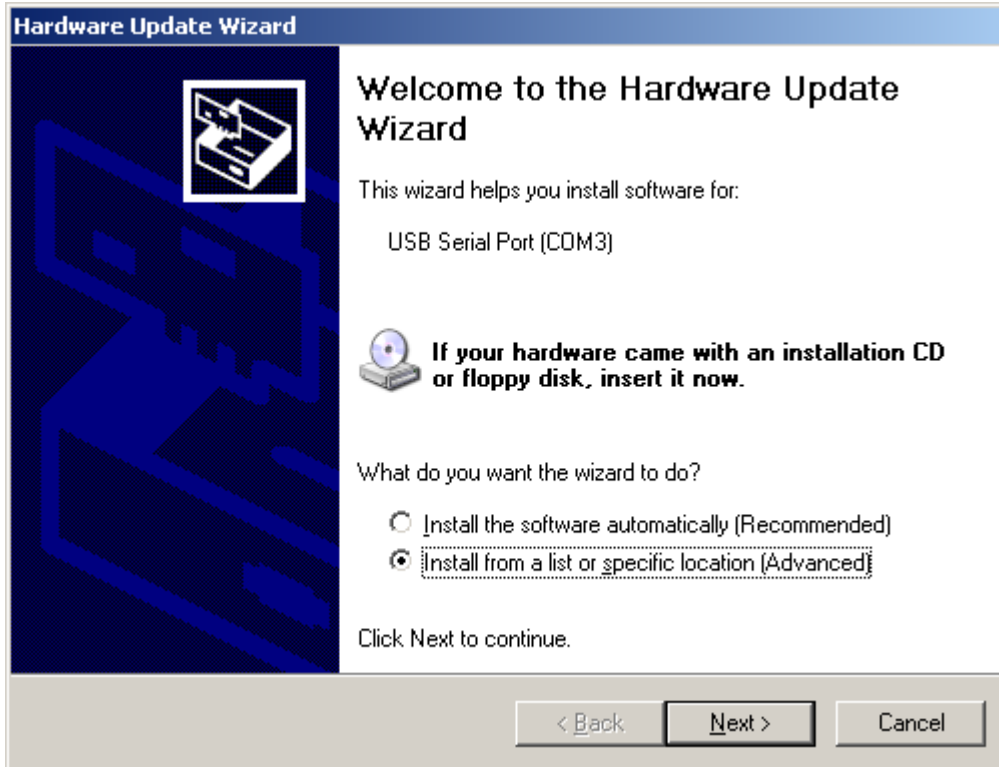


Note. Delete old driver by accessing Control Panel 「Add and Remove Programs」

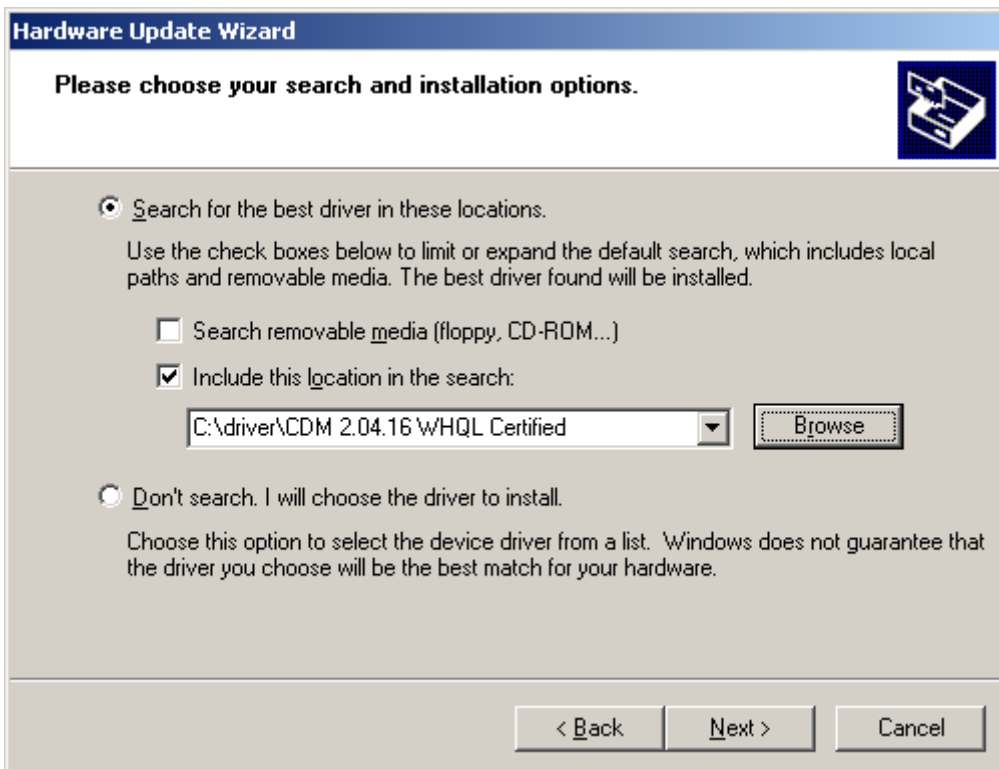
Preliminary

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.

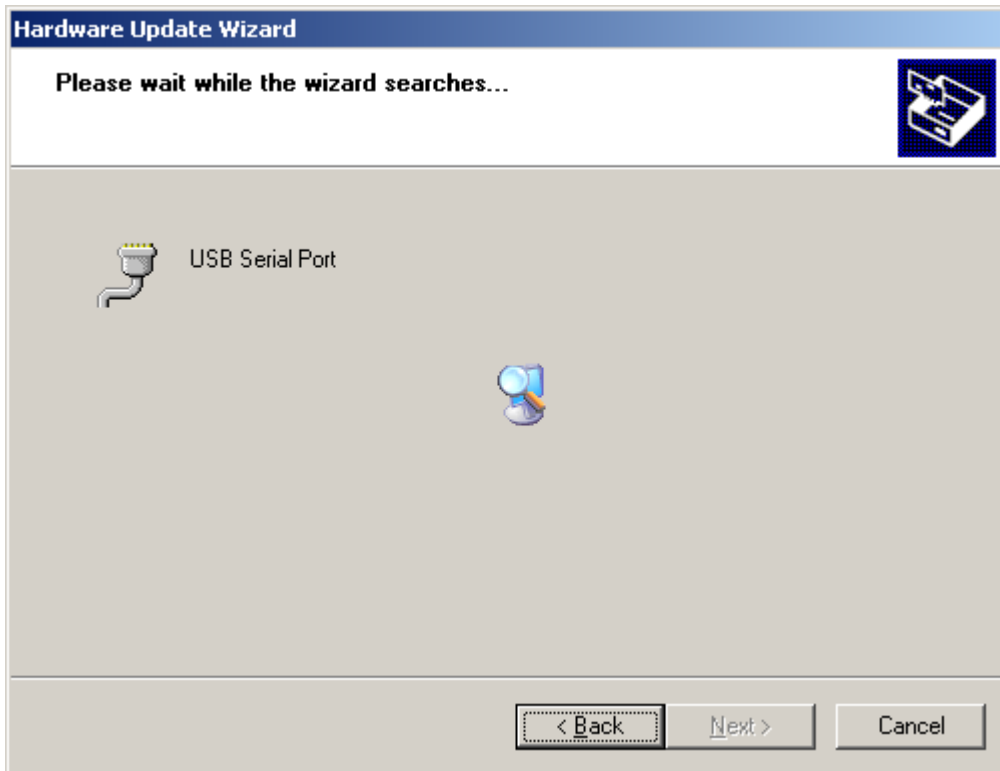


- When the following window appears, select the upper button and click Next after selecting the driver file.

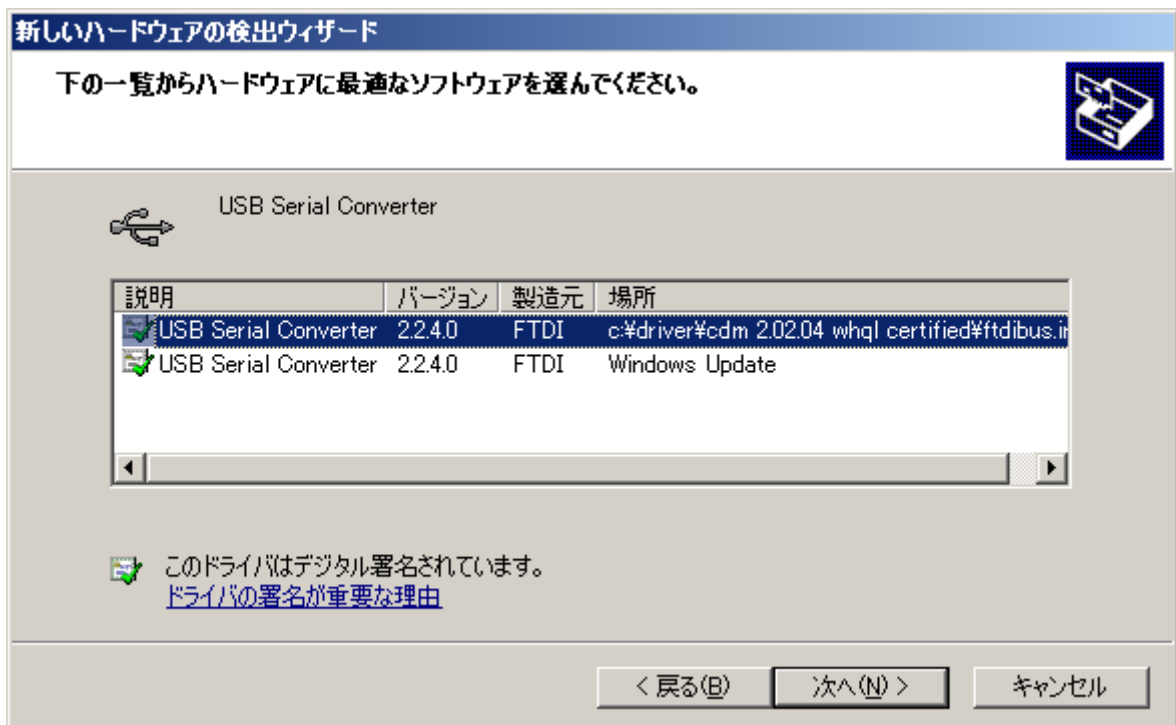


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- When this following window appears, please wait.



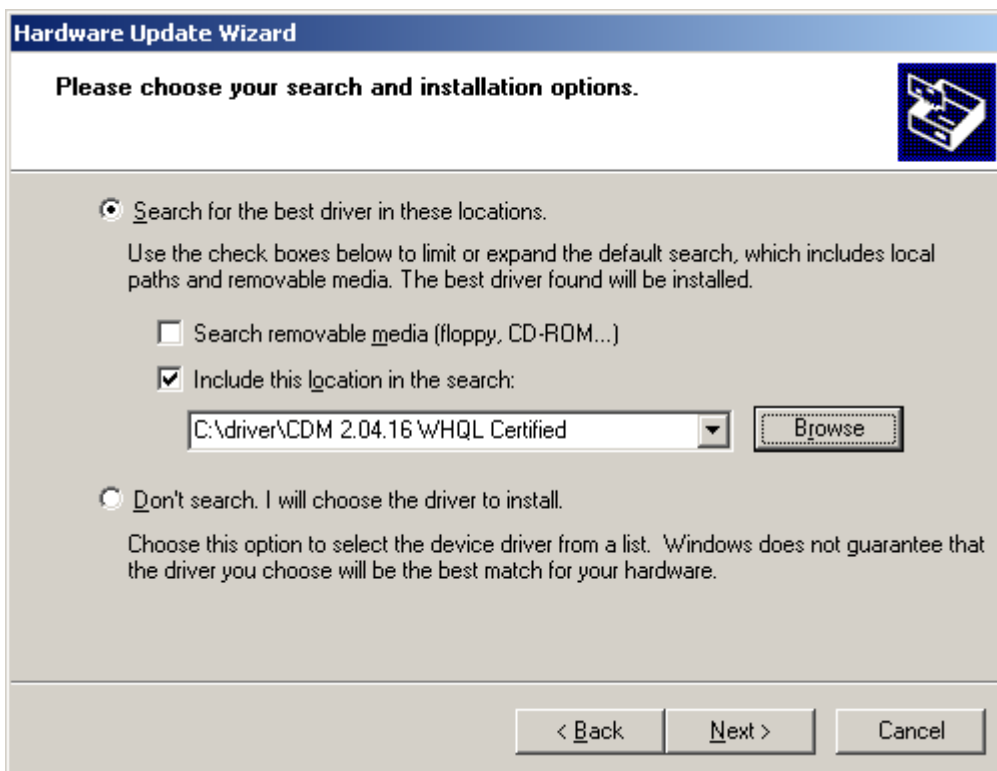
- When this following window appears, select the upper option and then click Next.



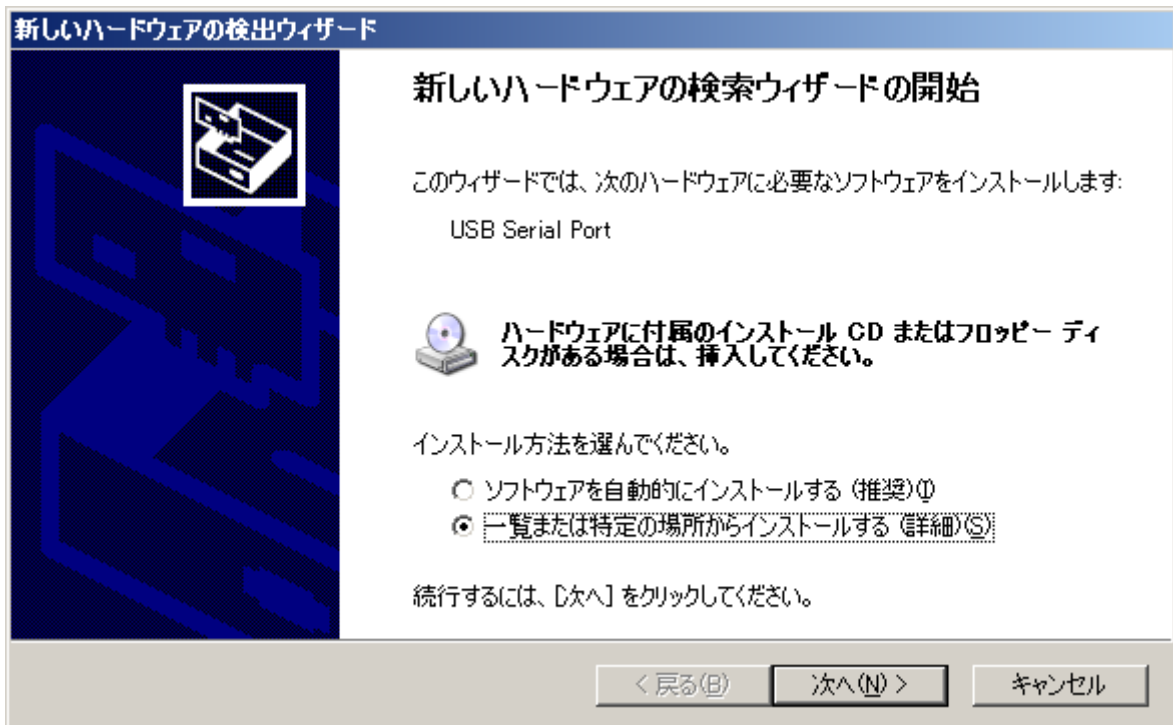
- When the following window appears, click Finish.



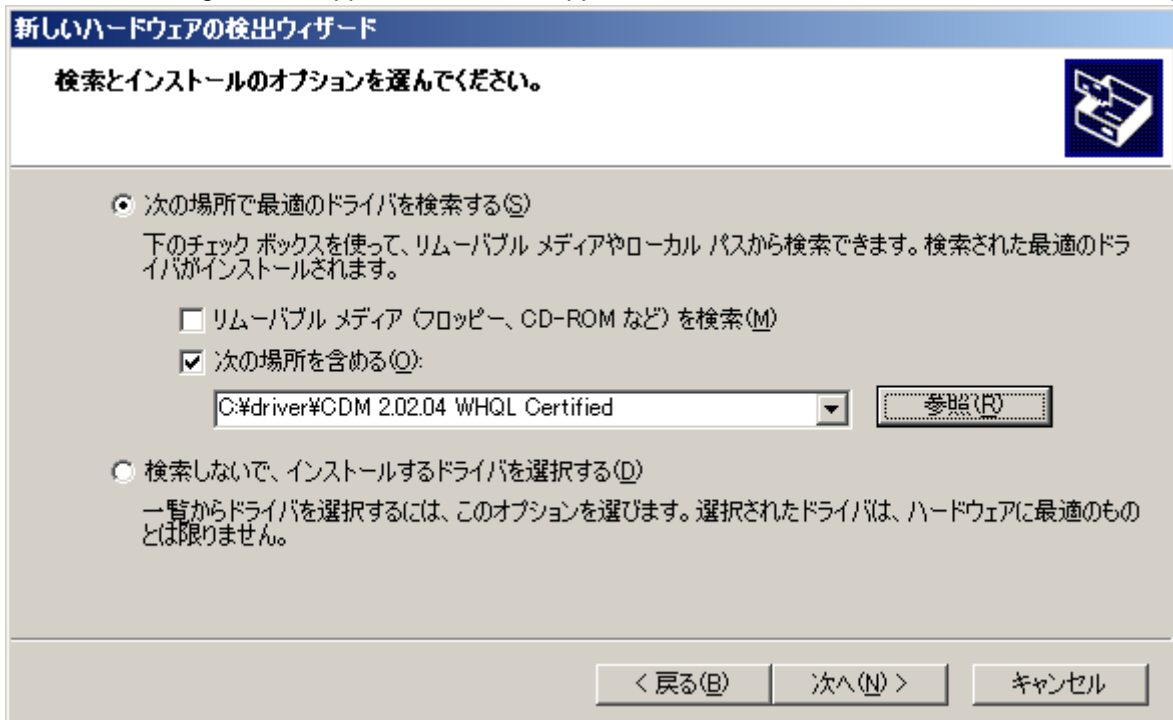
-
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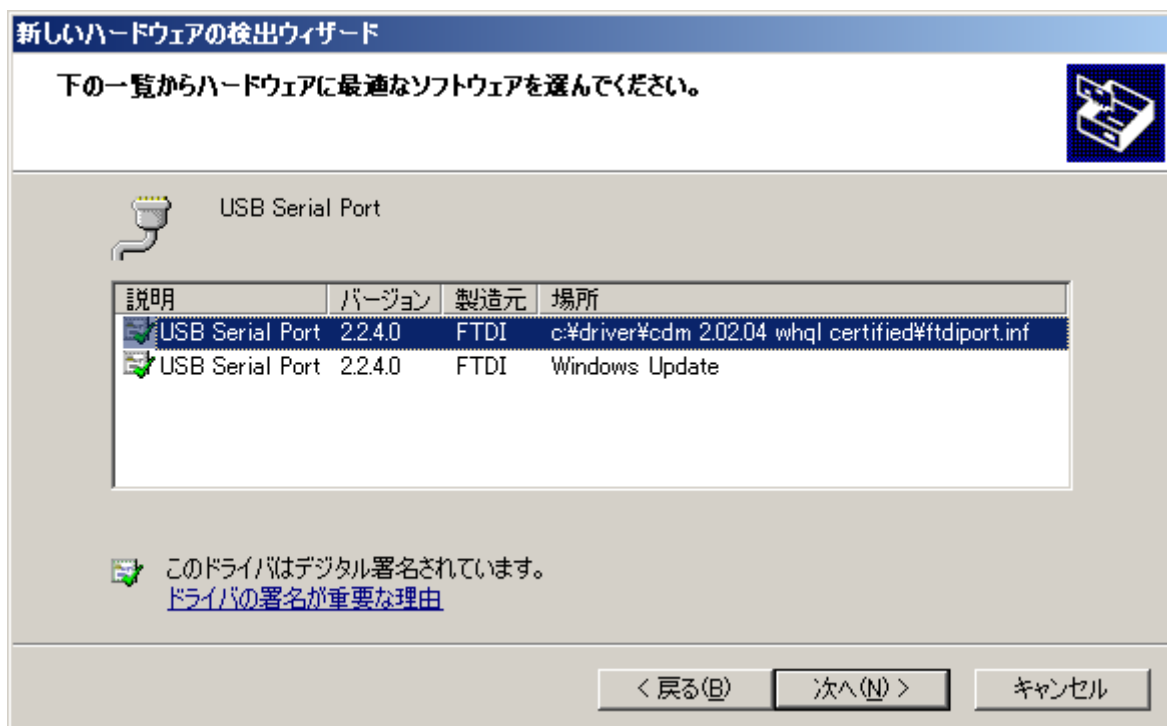
- When the following window appears, click Next.



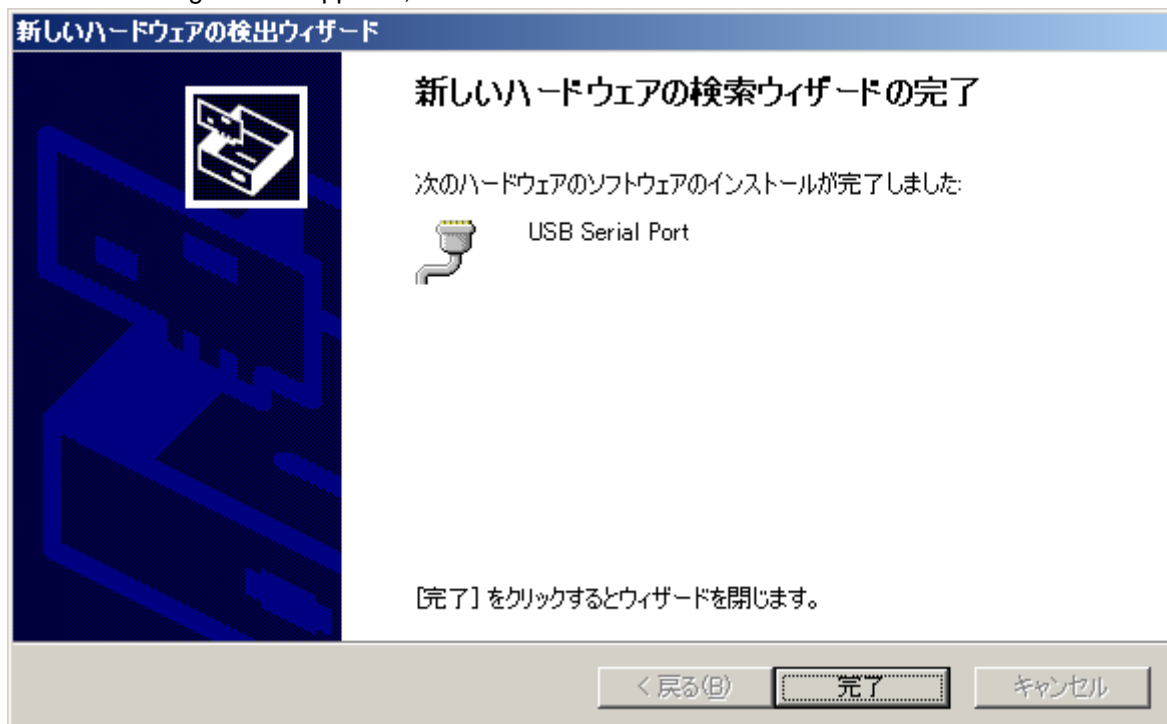
- When the following window appears, select the upper button, then select the driver file before clicking Next.



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

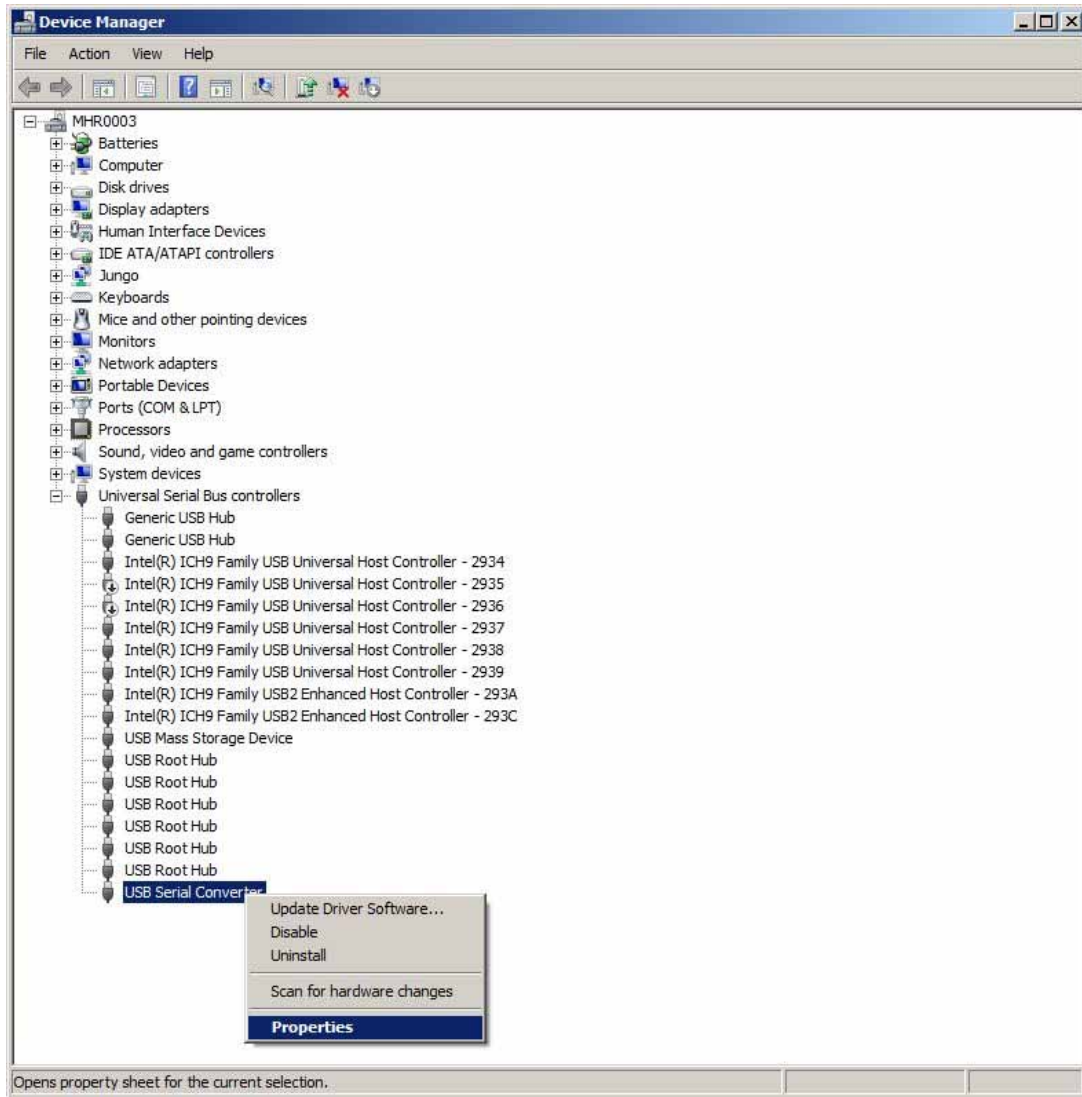


- When the following window appears, click Finish.

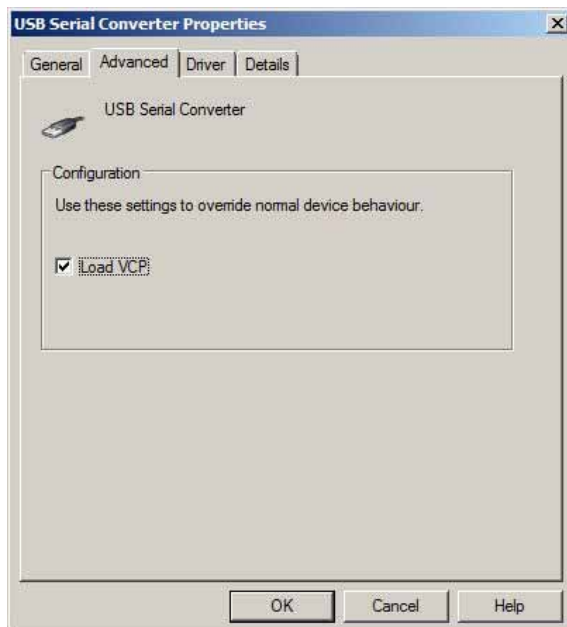


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- Open Device Manager > USB controllers > USB Serial Converter > Properties



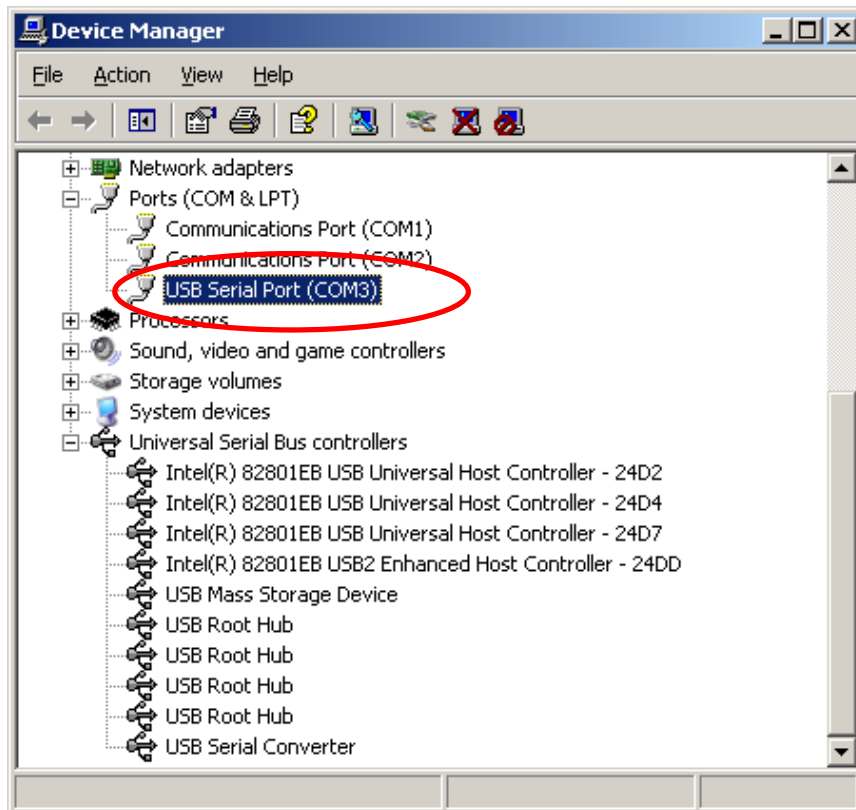
- Checked Load VCP and reconnect USB-cable



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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.



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4. Teraterm

4.1 Communication Specifications

Interface USB2.0 or higher

Application Teraterm (Windows)

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

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

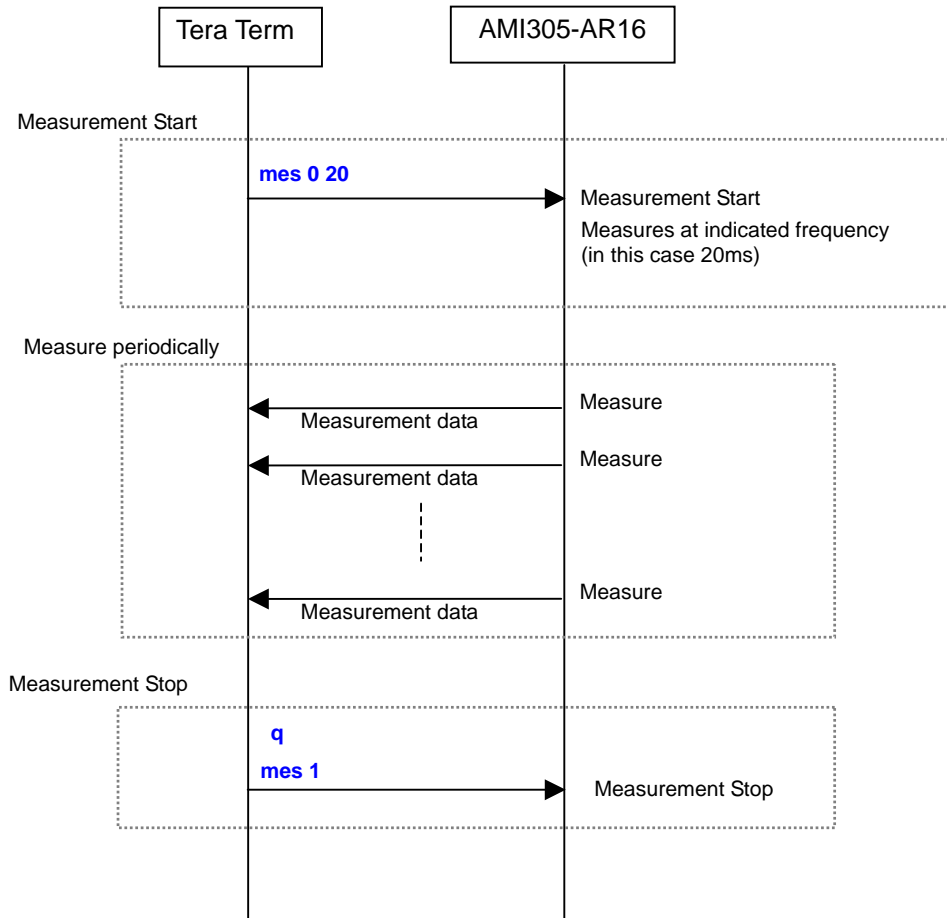
Preliminary

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

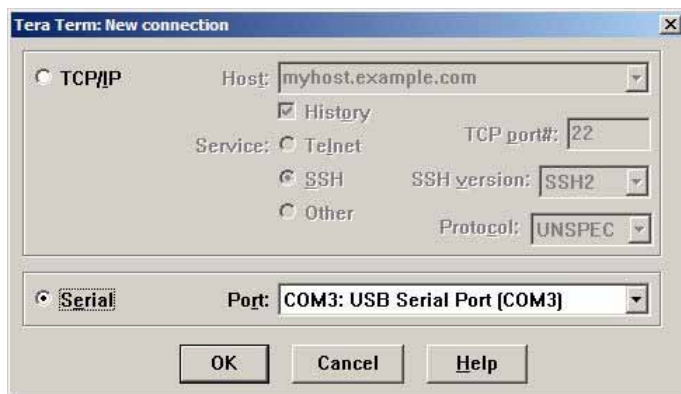


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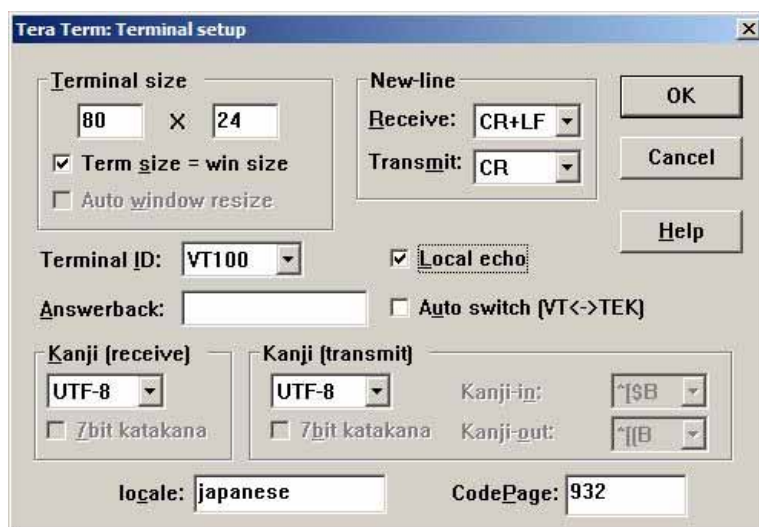
4.3 Communication Setting

Step1) Start TeraTerm

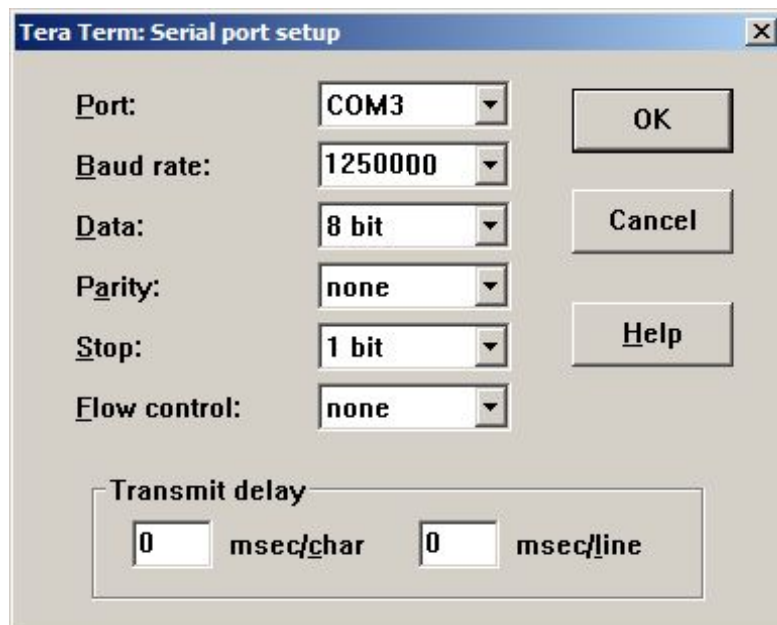
Step2) Select Serial – Port



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

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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

```

COM3:1250000baud - Tera Term VT
File Edit Setup Control Window Help
mes !184,83,349,170,162,293,157,185,221,134,105,100,298,325,153,335,214,-182,18,1
24,-401,-48,161,-117,156,48,-14,186,128,90,182,76,90,201,0,32,136,27,66,157,70,4
5,207,22,97,133,-44,-17,
mes !185,80,346,173,162,292,157,186,221,135,104,102,298,324,153,337,215,-183,18,1
22,-403,-48,160,-118,157,47,-18,188,126,91,183,76,92,202,0,32,136,27,65,157,73,4
5,208,22,96,133,-41,-18,
mes !184,82,347,171,163,291,156,186,221,134,104,102,297,326,153,335,214,-183,18,1
23,-402,-47,161,-118,156,48,-16,187,128,91,181,76,94,201,-1,34,136,28,66,156,70,
45,208,22,96,131,-41,-18,
mes !183,83,348,171,163,293,156,187,222,134,105,102,297,324,151,335,217,-182,18,1
23,-400,-48,160,-118,156,49,-16,187,127,93,183,74,92,201,1,32,135,28,67,155,70,4
5,208,21,96,135,-44,-18,
mes !183,83,348,170,164,294,156,186,222,134,106,102,296,325,153,337,215,-183,19,1
23,-401,-48,160,-117,157,48,-15,186,126,92,182,74,90,202,-1,31,136,27,66,156,71,
45,208,21,98,132,-44,-17,
mes !183,85,346,170,161,293,157,187,221,133,105,102,299,325,152,335,215,-182,17,1
23,-400,-46,160,-119,157,47,-14,187,126,92,182,75,91,202,0,32,136,28,65,155,70,4
6,207,21,97,133,-44,-18,
q!mes 1
mes !OK:Measurement Stop

act
act !OK:
  
```

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							

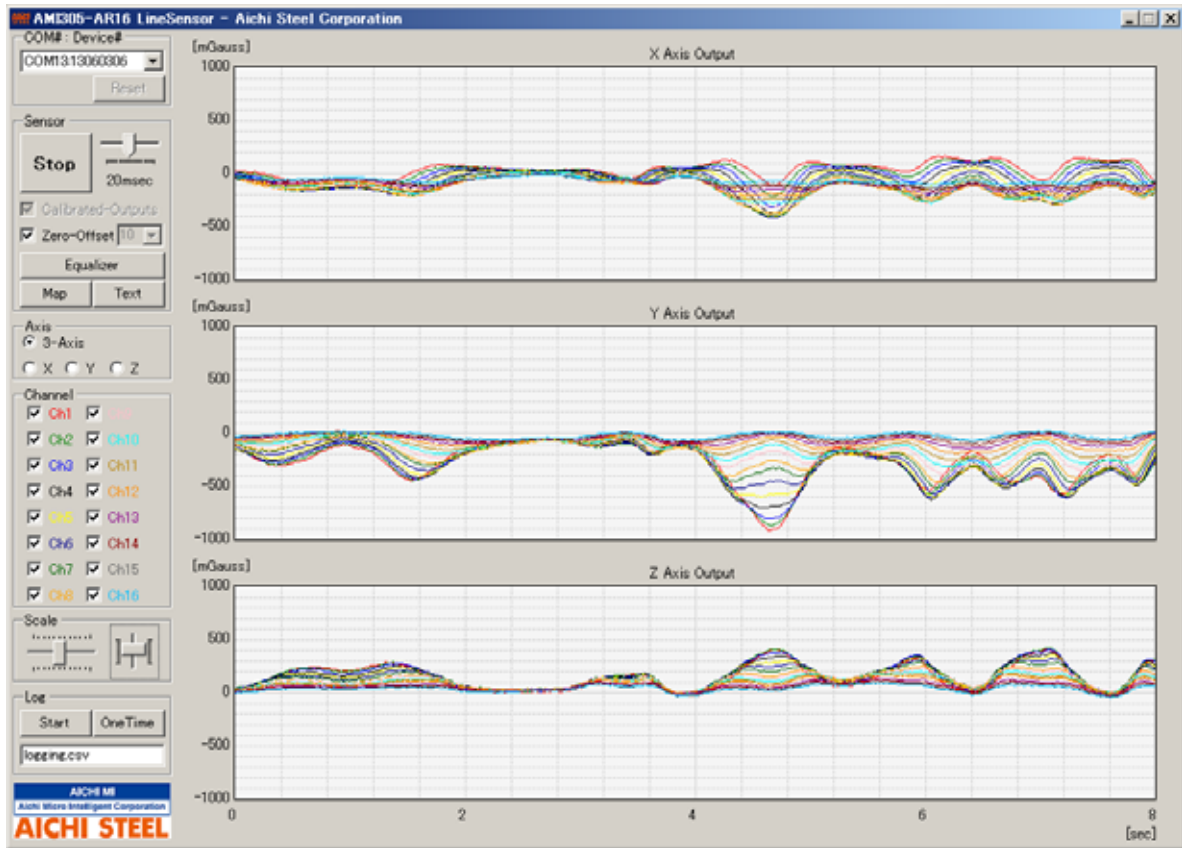
(1) Refer to AMI305 Specification for polarity.

http://www.aichi-mi.com/old_pages/3_products/121223_AMI305_Spec_preliminary_E.pdf

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5. Application 「AmiLineSensor.exe」

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



「AmiLineSensor.exe」 Full screen display

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5.1 Explanation of Functions

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.

Output measured values to file.

Name of output file

Polarity diagram

AMI305-AR16 LineSensor
COM#: Device#
COM13:13060306
Reset

Sensor
Stop 20msec

Calibrated-Outputs
 Zero-Offset 10

Equalizer

Map Text

Axis
 3-Axis
 X Y Z

Channel
 Ch1 Ch9
 Ch2 Ch10
 Ch3 Ch11
 Ch4 Ch12
 Ch5 Ch13
 Ch6 Ch14
 Ch7 Ch15
 Ch8 Ch16

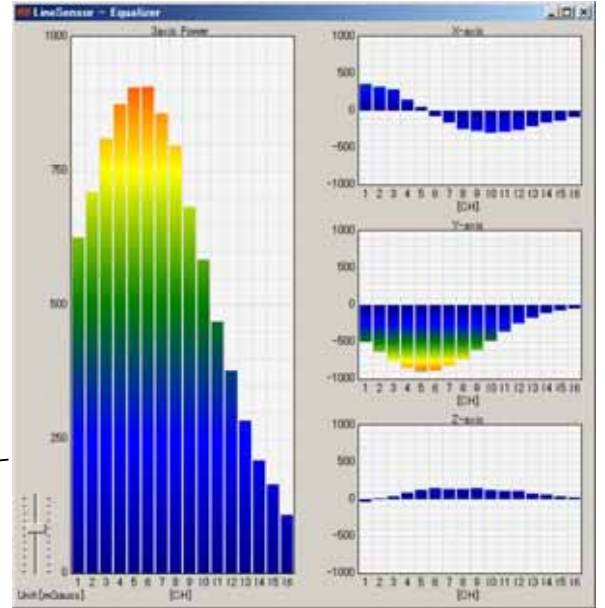
Scale

Log
Start OneTime

logging.csv

AICHI MI
Aichi Micro Intelligent Corporation
AICHI STEEL

Equalizer Display



LineSensor - Aichi Steel

	X[mGauss]	Y[mGauss]	Z[mGauss]
Ch1:	237	-611	146
Ch2:	-2	-701	-30
Ch3:	-209	-750	-70
Ch4:	-371	-728	-54
Ch5:	-401	-692	-23
Ch6:	-553	-618	70
Ch7:	-529	-660	189
Ch8:	-475	-462	156
Ch9:	-574	-372	129
Ch10:	-517	-313	443
Ch11:	-134	-200	702
Ch12:	145	-101	698
Ch13:	244	-64	428
Ch14:	326	-62	308
Ch15:	418	-98	201
Ch16:	591	-49	-7

Text Display

2D Magnetic distribution display

