

<h1 style="margin: 0;">AMI603EVK</h1> <h2 style="margin: 0;"><u>Ver 1.0</u></h2>
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Project Name	AMI603EVK
Specification Type	Basic Design / Detailed Design / Program Design Other (User Manual)
Function	Evaluation Kit
Date of Publishing	2011 September 5
Date of Editing	

Approval	Approval	Author
Head of Technical Department (Only for design documents)	Leader	Mori

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Preliminary

Record of Modification

Ver.	Date of Issue	Details of Change	Author
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1 To begin

This document describes the specification and operation of the AMI603 EVK.

2 About AMI603EVK

(1) Structure List

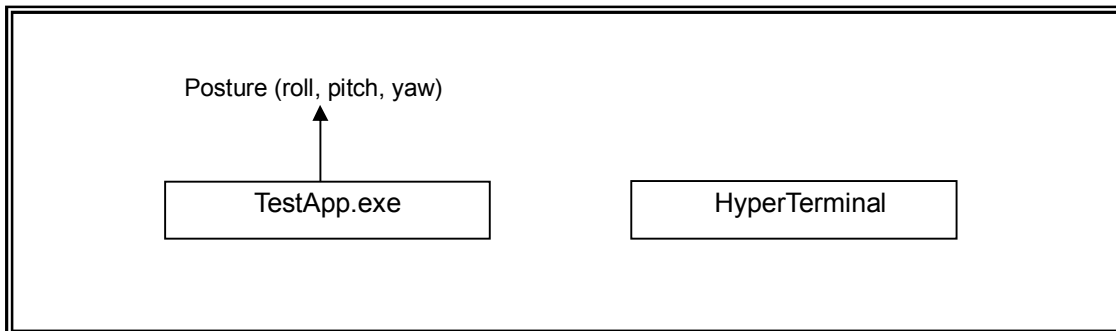
	Element	Name	Detail	Reference
1	Application	HyperTerminal (Windows Standard)	Sensor output, device control	This document
		TestApp.exe	Posture calculation, user calibration	TestApp Operation Manual
2	Device Driver	—	Device Control	Source code
3	Magnetometer	AMI603	Sensor	AMI603Deliver Datasheet

(2) Application Structure

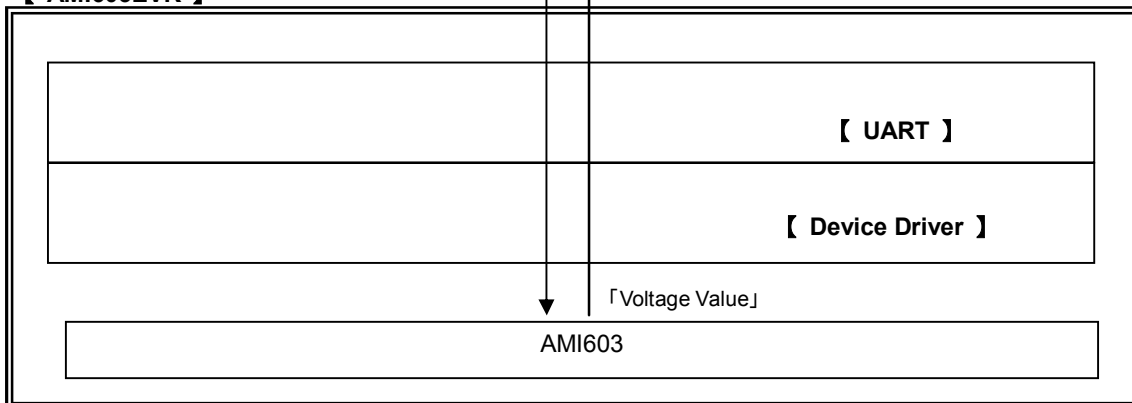
The AMI603EVK is controlled by HyperTerminal and is capable of measuring magnetism, acceleration and step count.

In addition, by using Compass-demo.exe (upper-application), it is possible to calculate posture and azimuth.

【PC】



【 AMI603EVK 】



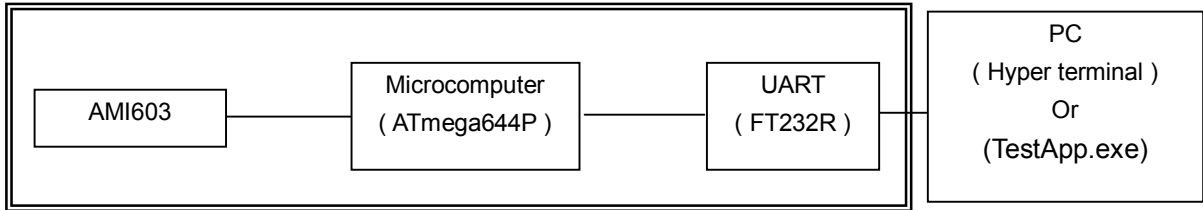
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(3) Hardware Structure

(3)-1 Hardware Block Diagram

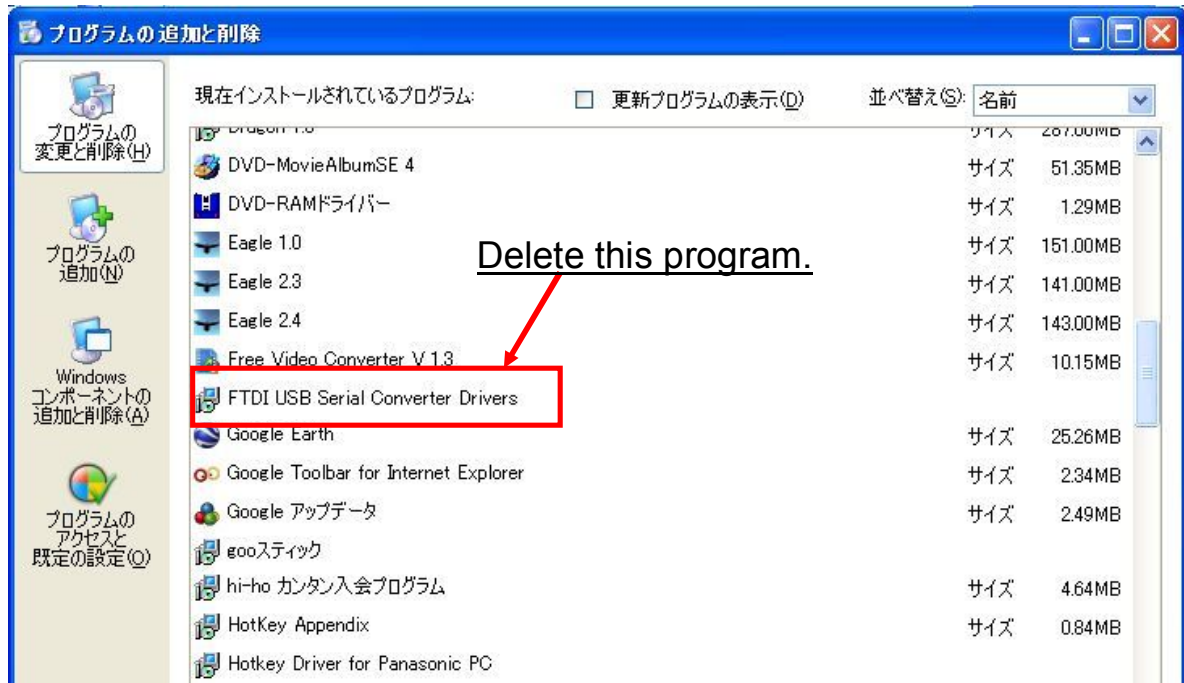
【 AMI603EVK 】

【 User PC 】



3 Initial Setting

Step1) If old versions of FTDI's driver are installed, please delete them.

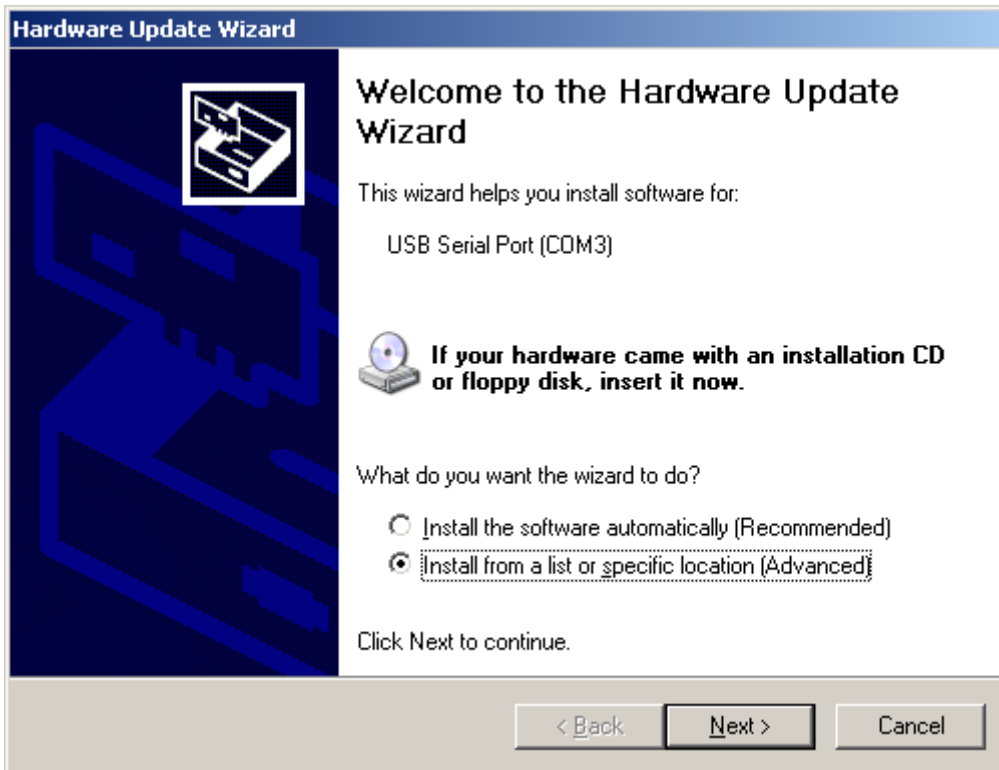


Note. Old drivers can be deleted by opening [Add and Remove Programs] in the Control Panel.

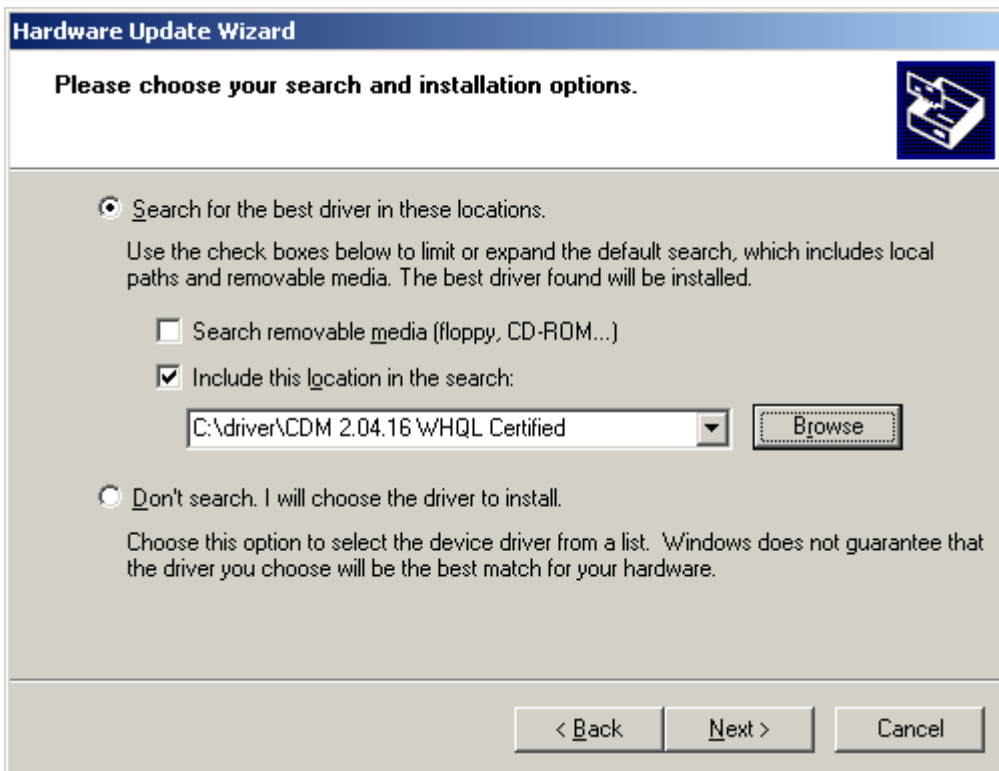
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Step2) Installing FT232R Driver

- Copy the FT232R driver file to C:\drivers\CDM 2.02.04 WHQL Certified
- Connect the EVK to a computer with a USB cable.
- When the below window opens, select [Advanced] and click [Next]

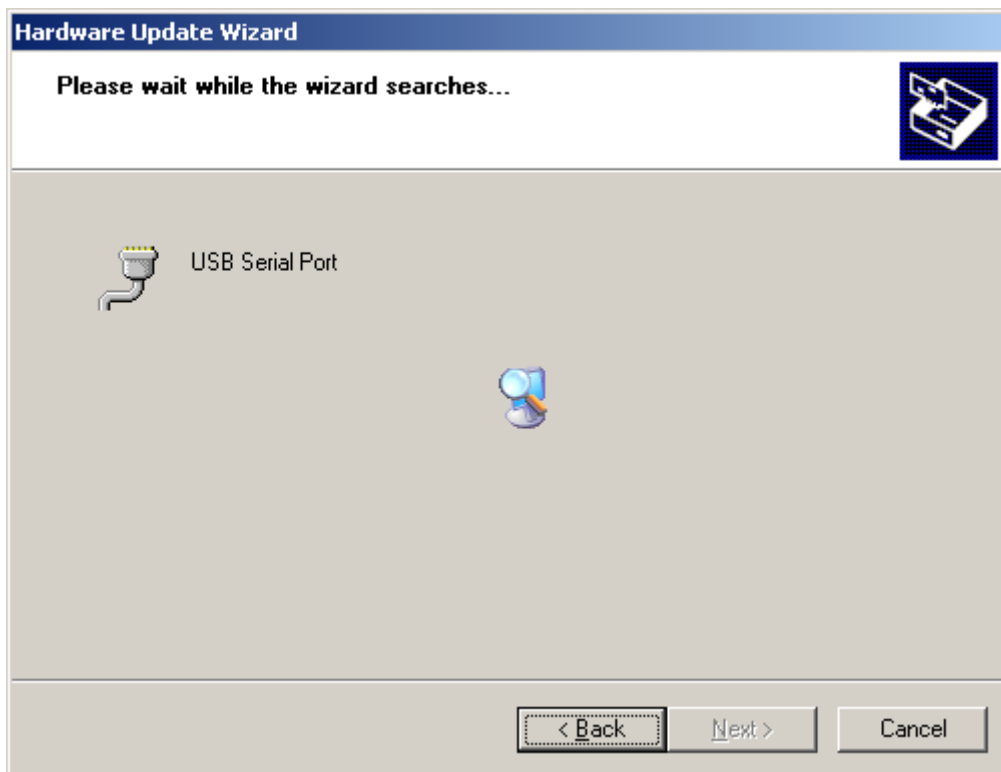


- When the below window opens, select [Search] and the driver file, then click next.

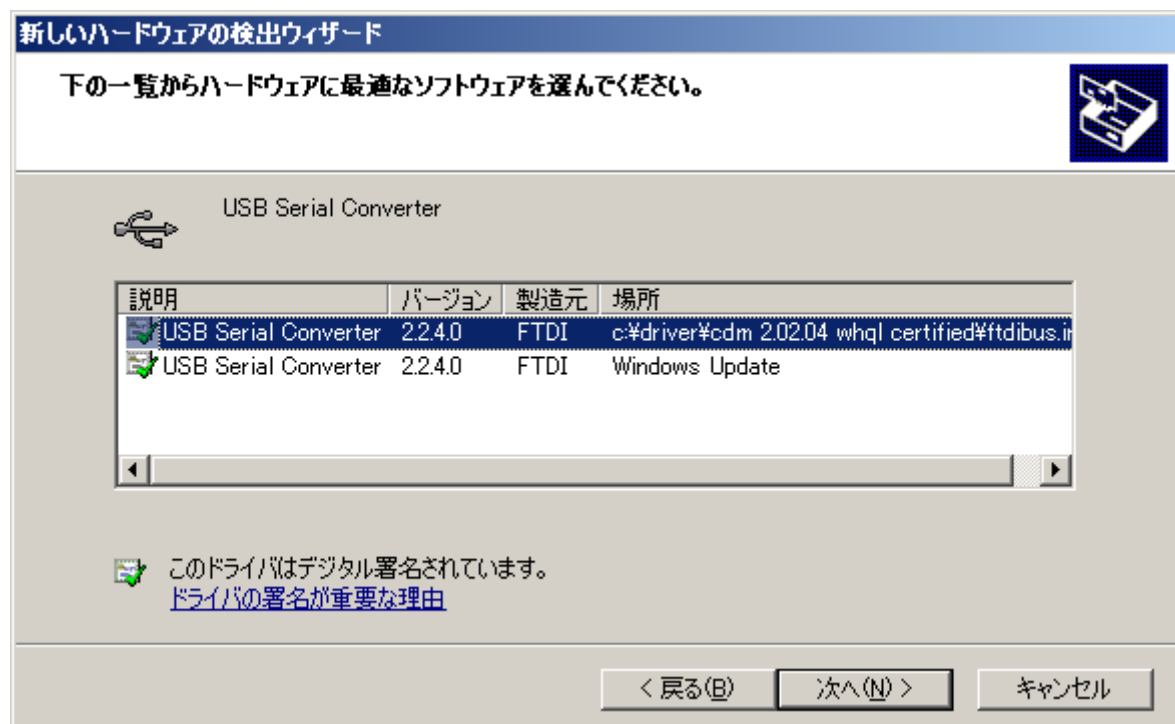


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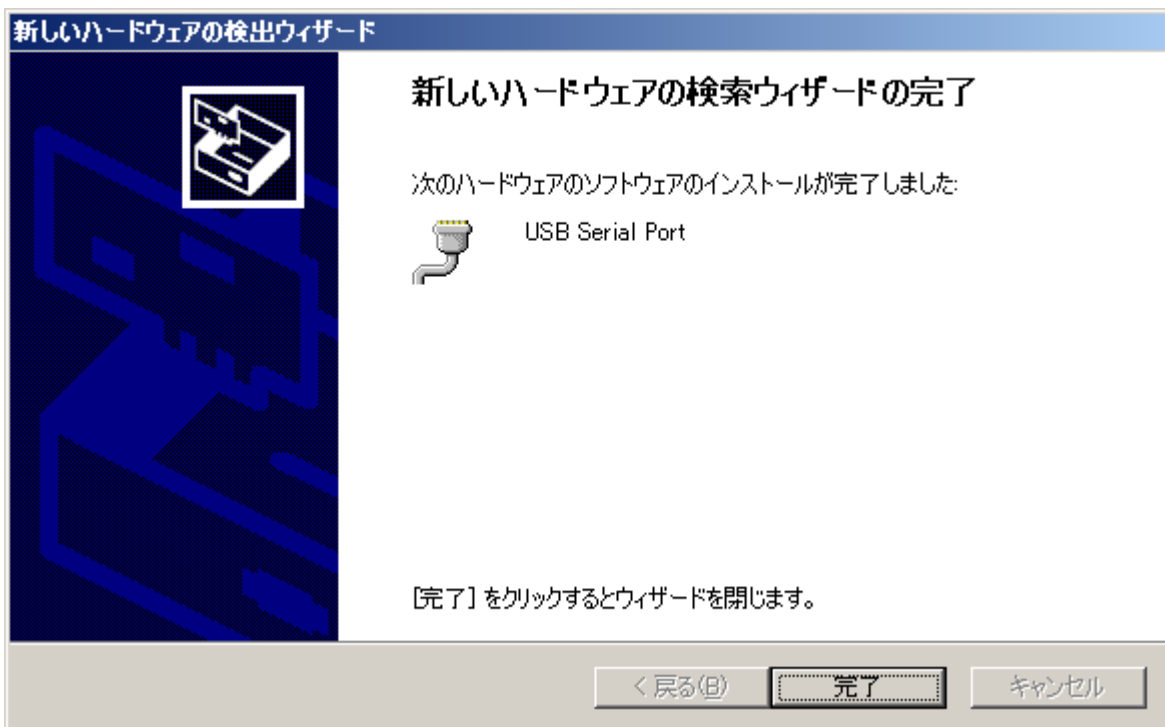
- When this next window opens, wait.



- When the below window opens, select the above file location, then click [Next]



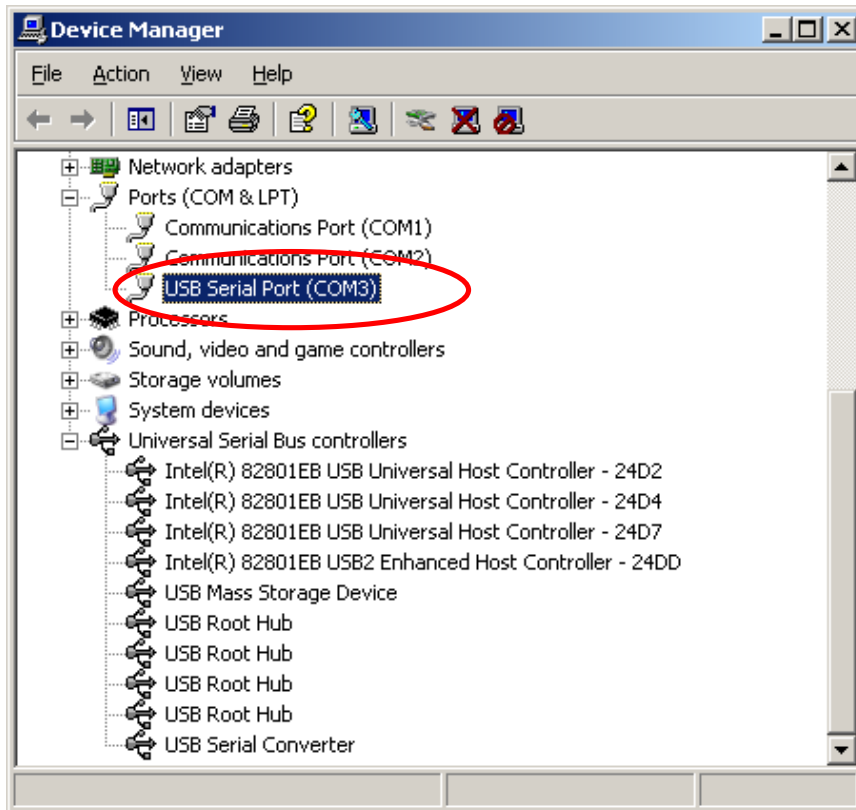
- When the below window opens, click [Finish]



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Step3) Confirm the COM port number.

- Open [Ports (COM & LPT)] in the Device Manager
- Confirm the COM port number. In this case, it is COM3.



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4 HyperTerminal Specification

4.1 Communication Specification

- ① Interface USB1.0 or higher
- ② Application HyperTerminal (Windows Standard)
- ③ Port Settings

	Item	Spec
1	Bit/Second	115200
2	Data bits	8
3	Parity	None
4	Stop bit	1
5	Flow control	None
6	Linefeed code	CR

4.2 Command Specification

4.2.1 Main Commands

Detail	command	send parameter	recv parameter
Initiate interval measurement (Carries out measurement at para2 interval)	mes	Para1 :0 or 3 Para2:measurement interval 00:4ms 20:20ms 40: 40ms Para1 :2 Para2:measurement interval 00:4ms 20:20ms 40:40ms 60:60ms 80:80ms 100:100ms Para1 :4	None
Stopping interval measurement	mes	Para1 :1	None
Origin adjustment (adjusts coarse, fine to bring each axis output value close to 2048) (Warning) Before issuing this command, AMI603 needs to be set to Normal with 「act 0」	seh	none	coarse /fine adjustment value Para1 : x coarse Para2: y coarse Para3: z coarse Para4: x fine Para5: y fine Para6: z fine
Obtain version	ver	Para1: 0: AMI603EVK 1: AMI603	Para1: Version information
Obtain Serial Number	sng	none	Serial number
Obtain device name	wia	none	Device name
Put into command accepting state (pauses serial output of data)	q	None	None

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Release from command accepting state	c	None	None
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4.2.2 Evaluation Commands

Detail	command	send parameter	recv parameter
Setting for origin adjustment value (coarse, fine)	ofs	Para1: x coarse (0) Para2: y coarse (0) Para3: z coarse (0) Para4: x fine (1-95) Para5: y fine (1-95) Para6: z fine (1-95)	None
Obtain origin adjustment values (coarse, fine)	ofg	None	Para1: X coarse Para2: Ycoarse Para3: Z coarse Para4: X fine Para5: Yfine Para6: Z fine
Power On/Off	pwr	Para1: 0: AMI603 Power Off 1: Ami603 Power On	None
Active Control	act	Para1 :0 or 3 Para2: Measurement interval 00:4ms 20:20ms 40: 40ms Para1 :2 Para2: Measurement interval 00:4ms 20:20ms 40:40ms 60:60ms 80:80ms 100:100ms Para1 :4	None
Stand-by Control	sty	None	None
Obtain Status (Active / Stand-by)	rmg	None	Status
Carry out single measurement	mea	None	Para1: X Magnetism (LSB) Para2: Y Magnetism (LSB) Para3: Z Magnetism (LSB) Para4: X Acceleration (LSB) Para5: Y Acceleration (LSB) Para6: Z Acceleration (LSB) Para7: Temperature (LSB)

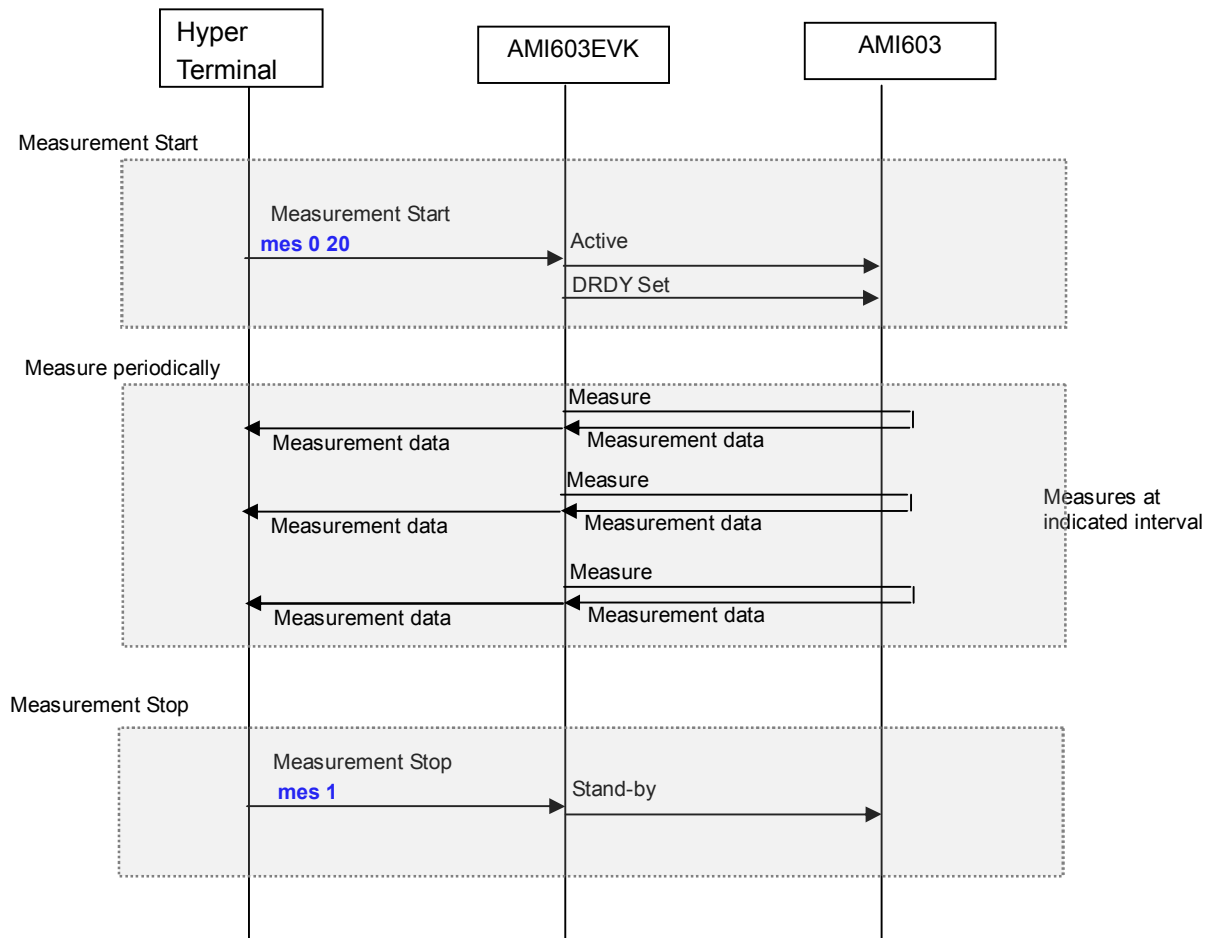
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4.2.3. Debug Command

Detail	command	send parameter	recv parameter
I2C Write (Byte)	b2w	Para1: AMI603 Register Address Para2: Write Data (byte)	None
I2C Read(Byte)	b2r	Para1: AMI603 Register Address	Para1: Read Data (byte)
I2C Write (WORD)	w2w	Para1: AMI603 Register Address Para2: Write Data (word)	None
I2C Read (WORD)	w2r	Para1: AMI603 Register Address	Para1: Read Data (word)
EEPROM Read	epw	Para1: AMI603 Register Address Para2: Write Data	None
EEPROM Write	epr	Para1: AMI603 Register Address	Para1: Read Data

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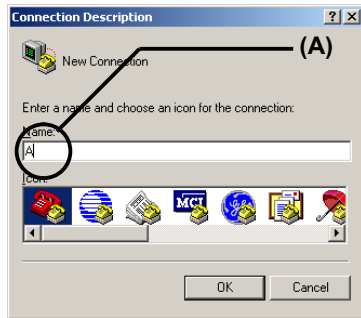
4. 2. 4 Sequence Example



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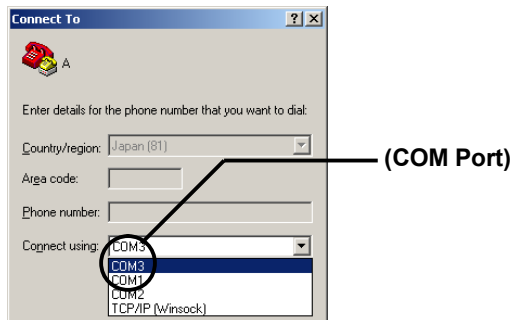
4.3 Connection Method

Step1) Launch HyperTerminal (File name: Arbitrary)

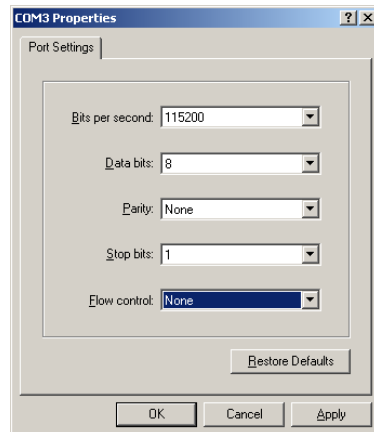


Step2) Enter file name (Arbitrary: Example (A) and click OK.

Step3) Select the COM port AMI603EVK is connected to.



Step4) Set as indicated in port settings in 3.1 Connection Specifications.

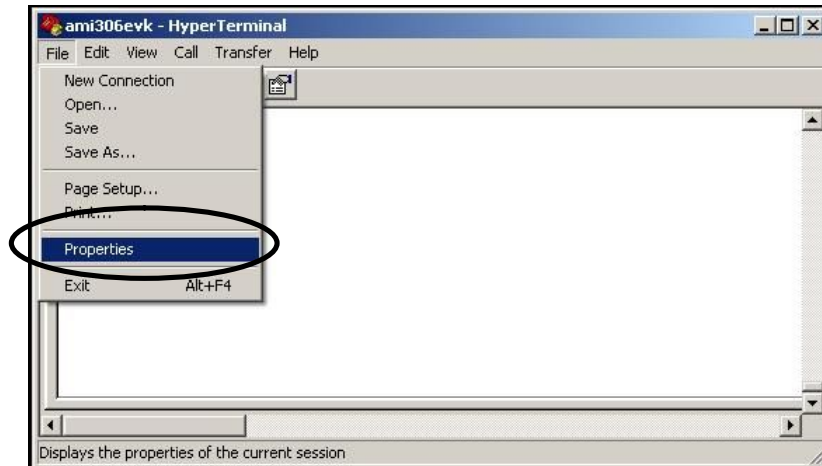


Connection Settings

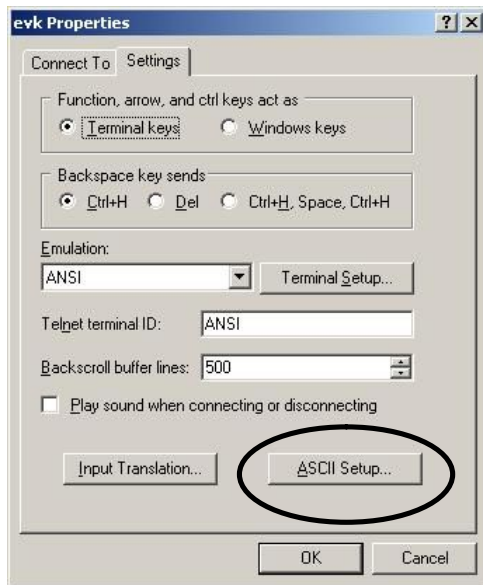
Item	Setting Value
Bit/second	115200
Data bit	8
Parity	None
Stop bits	1
Flow control	None

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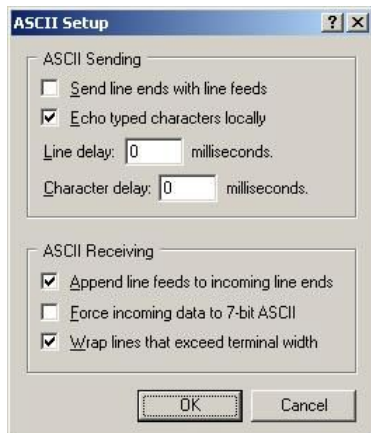
Step5) From the above menu, select File -> Properties.



Step6 Click ASCII Setup.

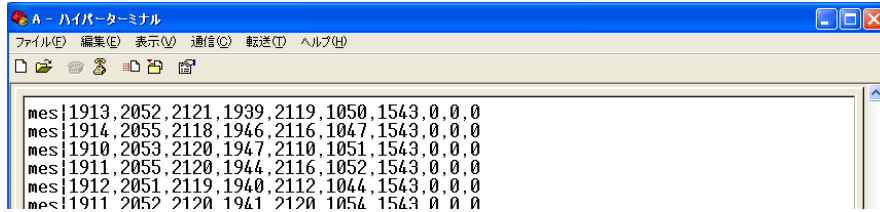


Step7 Carry out the settings below and click OK.

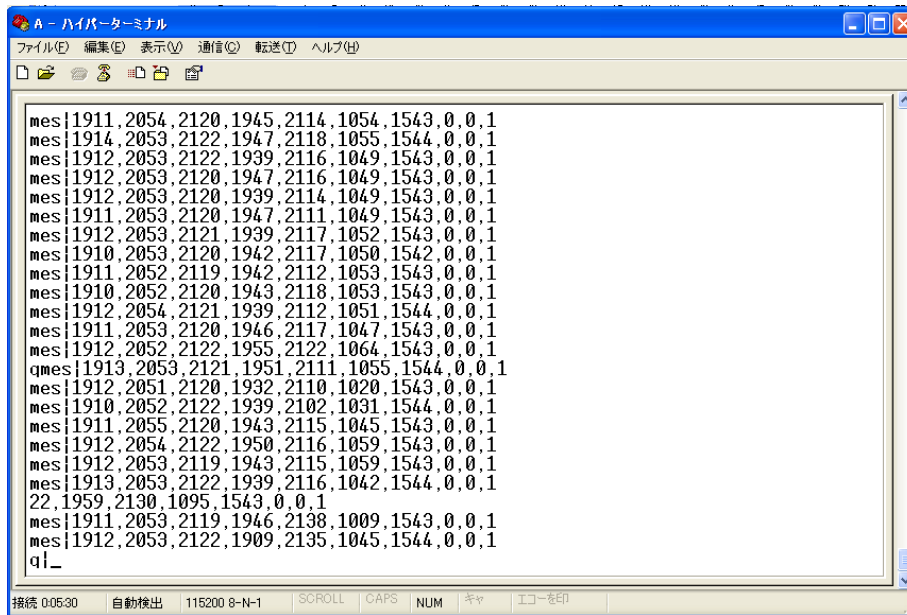


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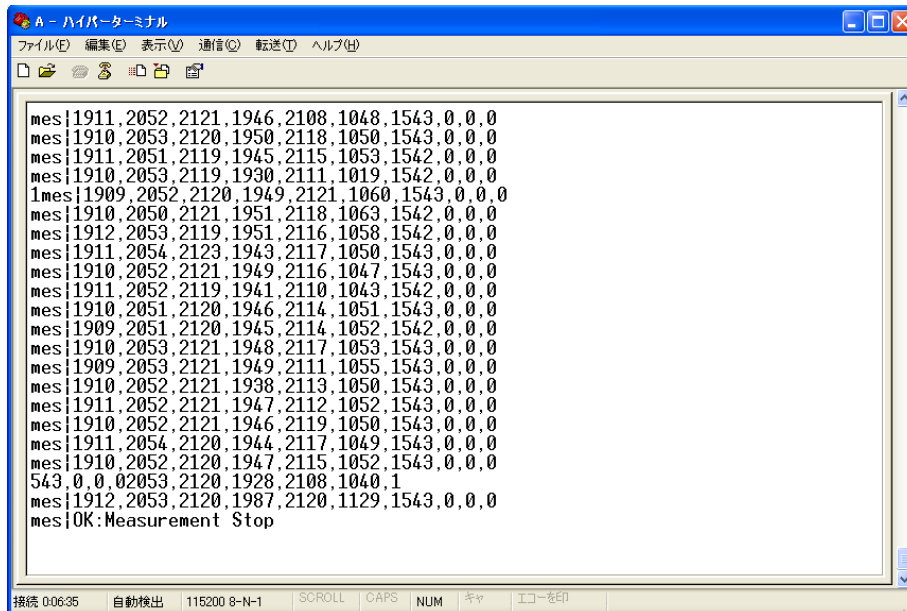
Step8) After entering 『mes 0 20』 and pressing the return key, measurement will begin.



Step9) Press return key after entering 『q』 and measurement will be paused.



Step10) Press return key after entering 『mes 1』 and measurement will stop.



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4.4 Data Specification

(1) Data Format

The default data order is shown below.

```

mes:1913,2052,2121,1939,2119,1050,1543,0,0,0
mes:1914,2055,2118,1946,2116,1047,1543,0,0,0
mes:1910,2053,2120,1947,2110,1051,1543,0,0,0
mes:1911,2055,2120,1944,2116,1052,1543,0,0,0
mes:1912,2051,2119,1940,2112,1044,1543,0,0,0
mes:1911,2052,2120,1941,2120,1054,1543,0,0,0

```

No.	1	2	3	4	5	6	7	8	9	10
Item	X-axis Mag (※1)	Y-axis Mag (※1)	Z-axis Mag (※1)	X-axis Accel (※2)	Y-axis Accel (※2)	Z-axis Accel (※2)	AMI603 Temperature	Number of Steps	Walking duration	Pedometer status
Symbol	Hx	Hy	Hz	Ax	Ay	Az	temp	status_cnt	status_time	status_stat
unit	bit									

(※1) See AMI603 Delivery Specification for polarity.

(※2) See Kionix KXTF9 datasheet for polarity.