WDAS

Wireless Data Acquisition and Control Device

W610A

User's Manual

Ver 1.0

SEBINE Technology, Inc.

W610A

CONTENTS

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1. Summary

1.1 Product Introduction

W610A is one of WDAS(Wireless Data Acquisition and Control System) products and it is a wireless data transmitter-receiver which receives analog input data for controlling signal by using 433MHz RF frequency bandwidth. W610A allows users to set communication channels via environment setting. Usable frequency number, channel number, and serial number are printed in shipping products.
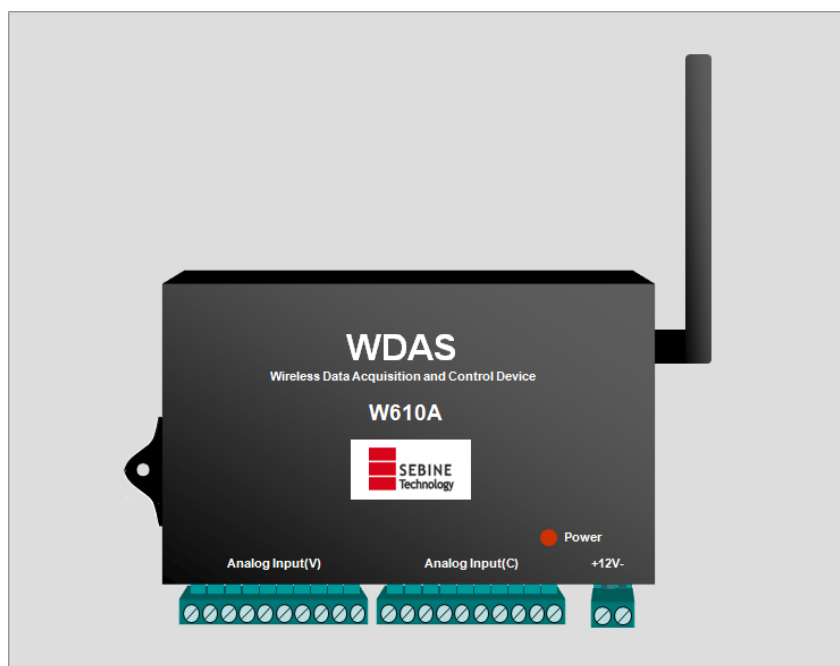

Figure 1. W610A
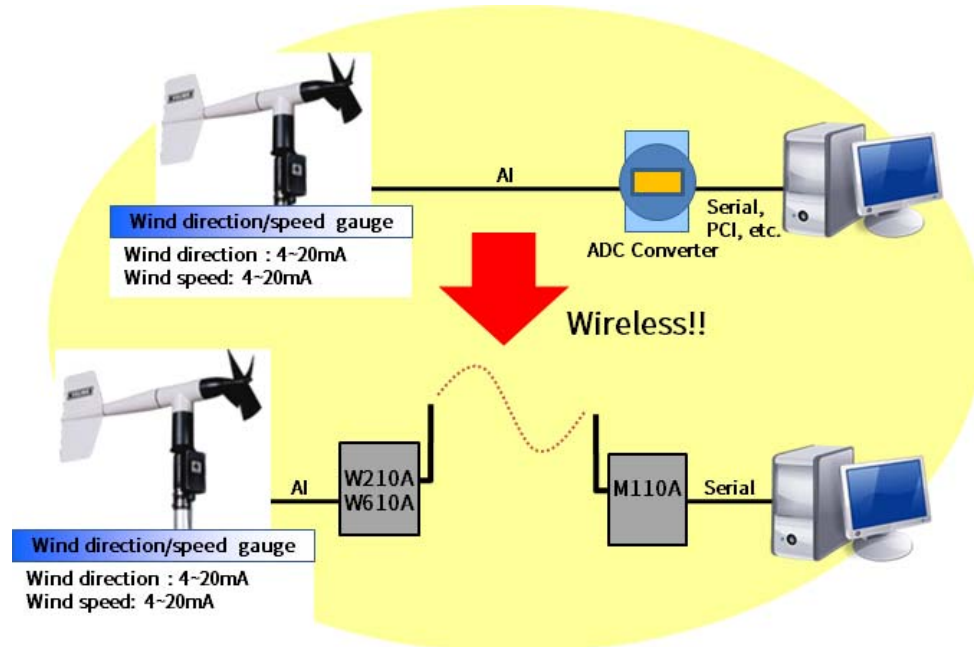
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1.1.1 Application examples

Figure 2. Analog Input Monitoring by W610A and M110A

1.1.2 Product usage
 - Cable system replacement : Maintenance difficulty with cables is solved
 - Hard environment for cable installation : Environment that requires long and complicated cable installation is solved
 - Uneasy area for data acquisition by cable : Outdoor tank monitoring system

1.1.3 Product application area
 - Pump, pipeline, liquid flow monitoring system
 - Tank level, temperature monitoring system

1.1.4 Product parts
W610A main body, one λ/4 dipole antenna, one power connector, two Analog Input connector

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1.2 Specification

Item	Specification	
Name	W610A	
Dimension	133mm(L)×72.4mm(W)×19.6mm(H) (w/o Antenna)	
Housing	Aluminum	
Weight	300g (w/o Antenna)	
Power Supply	+12Vdc ±10%, Reverse Power/Overvoltage/Overcurrent Protection	
Current Consumption	Rx 80mA Tx 86mA WDT Reset 88mA (@12Vdc)	
Operating Temperature	-10℃ ~ +60℃	
RF Features	. Frequency : 433.050MHz ~ 434.790MHz . Channel Spacing : 25KHz . Transmitter Power : 10mW . Receiver Sensitivity : -116 ~ -120dBm(-116dBm typ.) . Modulation : FSK . Bandwidth : 〈 14KHz	

Performance	. Expected Line-Of-Sight Range :
	    Up To 1.5km with λ/4 Dipole Antenna
	. RF Data Rate :
	    4.8K Baud, 7.2K Baud	

I/O Interface	Analog Input	8Ch. Analog Input, with 16Bit Resolution (0~5V, 0~10V, 4~20mA) User Selectable Input Type : Current or Voltage User Selectable Input Voltage Range : 0~5V or 0~10V
	Antenna Interface	. SMA Connector . Impedance 50Ω

Table 1. W610A Specification

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2. Operation Mode

W610A allows PC MODE and DEVICE MODE for users' personal need. Function Code and its functionality is restricted based upon selected mode. Refer the Programmer guide for detailed protocol and Function Code.

2.1 PC MODE

2.1.1 Definition of PC MODE

Through M110A(PC MODE), W110A(Only PC MODE) with serial port, W210A execute the command when valid Function Code is received.
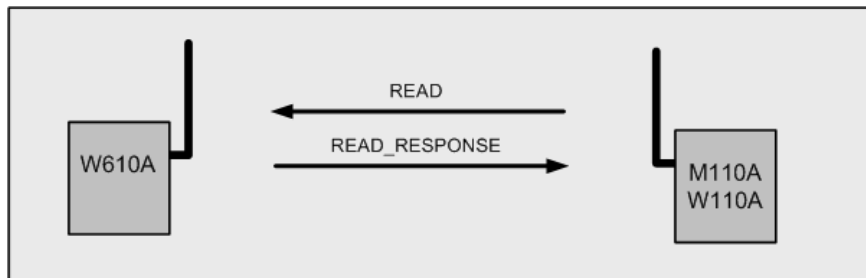

Figure 3. PC MODE of W610A

2.1.2 Function Code available at PC MODE

- READ : Through M110A(PC MODE), W110A(Only PC MODE) with serial port, current analog input status is read when W210A receives Function Code of inquiry of analog input status.

- READ_RESPONSE : Function Code of READ_RESPONSE is used when READ Function Code is received and current analog input status is transmitted.

2.1.3 Environment setting list before PC MODE use
 - Select PC MODE at PC/DEVICE MODE Setting

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2.2 DEVICE MODE

2.2.1 Definition of DEVICE MODE

Established DESTINATION device transmits current analog input status according to set period.
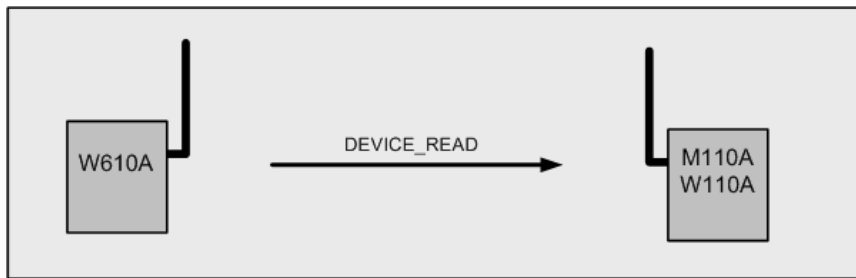

Figure 4. DEVICE MODE of W610A

2.2.2 Function Code available at DEVICE MODE

 - DEVICE_READ : When the established DESTINATION device transmits current analog input status according to set period, Function Code of DEVICE_READ is used.

2.2.3 Environment setting list before DEVICE MODE use

 - DEVICE MODE selection at PC/DEVICE MODE Setting
 - DESTINATION ID set up at DESTINATION ID Setting
 - TX Period Set up at Period Setting

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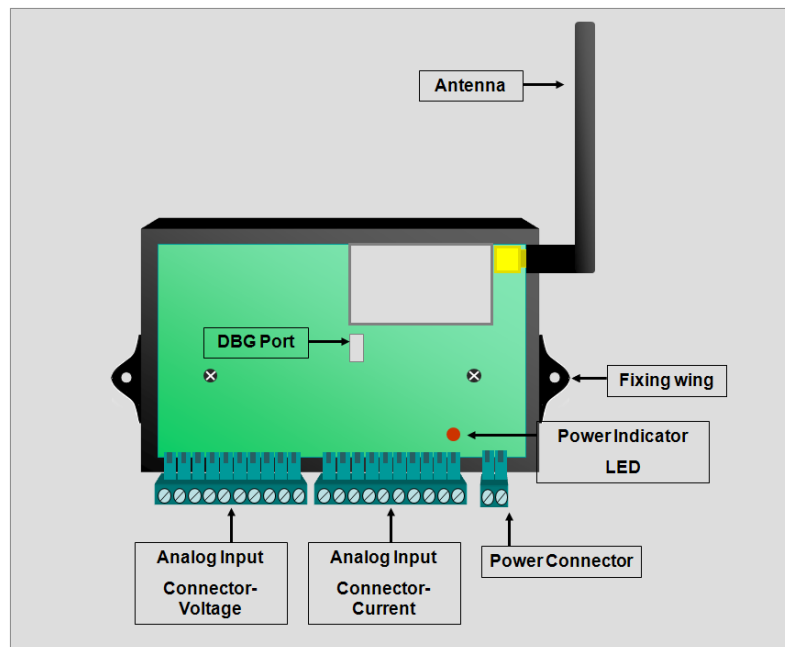## 3. Device Connection
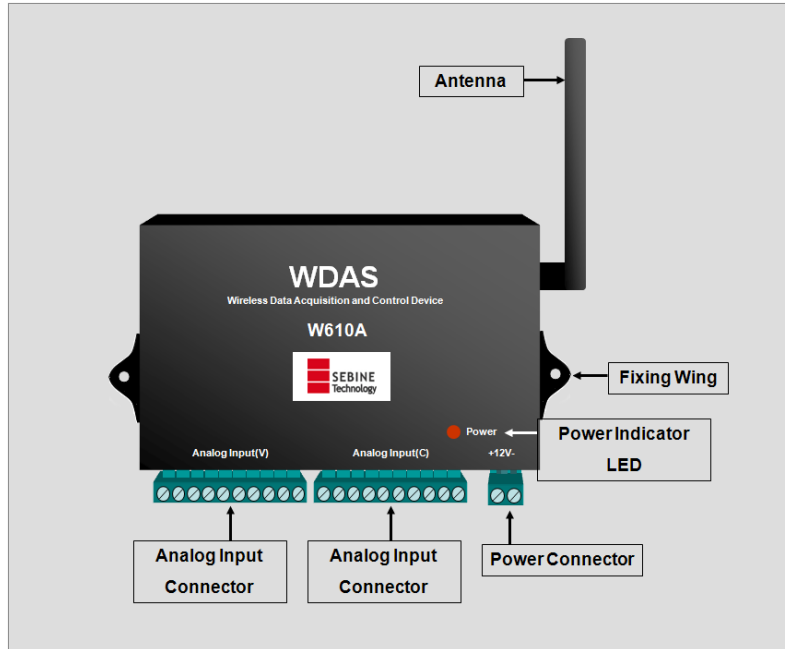
Figure 5. W610A Outer

Figure 6. W610A Inner

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3.1 Power Supply

W210A works at +12Vdc and equipped with Reverse Power / Overvoltage / Overcurrent Protection circuitry. Power is supplied by power connector provided at product purchase as shown in figure below. W210A has no external power switch and it becomes in working mode when the power is supplied. If normal power is supplied, power supply indicator LED is on.

a. As shown in Figure 7, remove the skin of wire about 7mm and put it into the terminal and tighten it by turning the left screw using screwdriver.

b. As shown in Figure 8, connect it to power.

c. As shown in Figure 9, connect the terminal to power port of W210A, Make sure the direction is exact as shown in Figure 9.
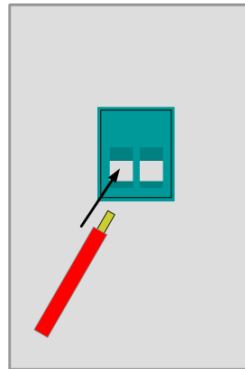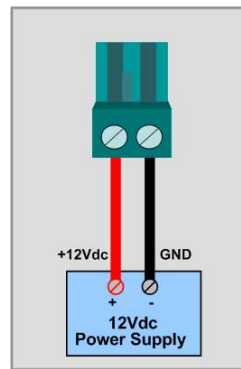

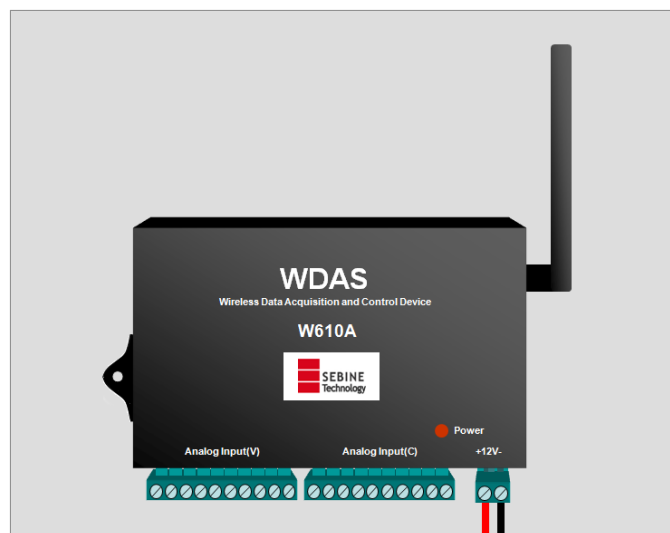Figure7. Power Supply-1   Figure8. Power Supply-2

Figure9. Power Supply-3

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3.2 Analog Input Connection and Setting

W610A supports 2 input channel. For analog input function, use Analog Input connector in Figure 10. Analog Input connector is included in product purchase. Connection method is same as power supply connection method.
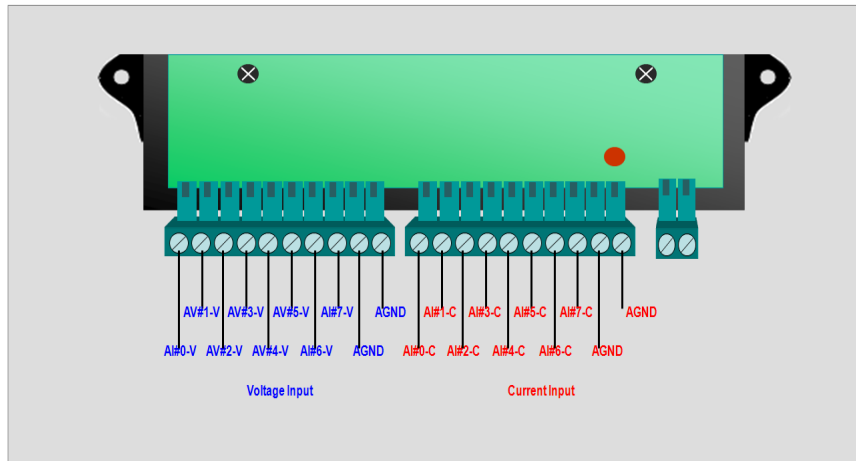

Figure 10. W610A connector

3.2.1 Analog input connection

Analog input channel generates input via the difference between AGND and corresponding analog input channel pins. Thus, the both ends of device that generates analog input should be connected to corresponding channel pins and AGND.

3.2.2 Analog input channel setup

For use of analog input, J6~J13 voltage input level setting jumper, J14~J21 voltage/current input setting jumper adjustments are needed as shown in Figure 11.
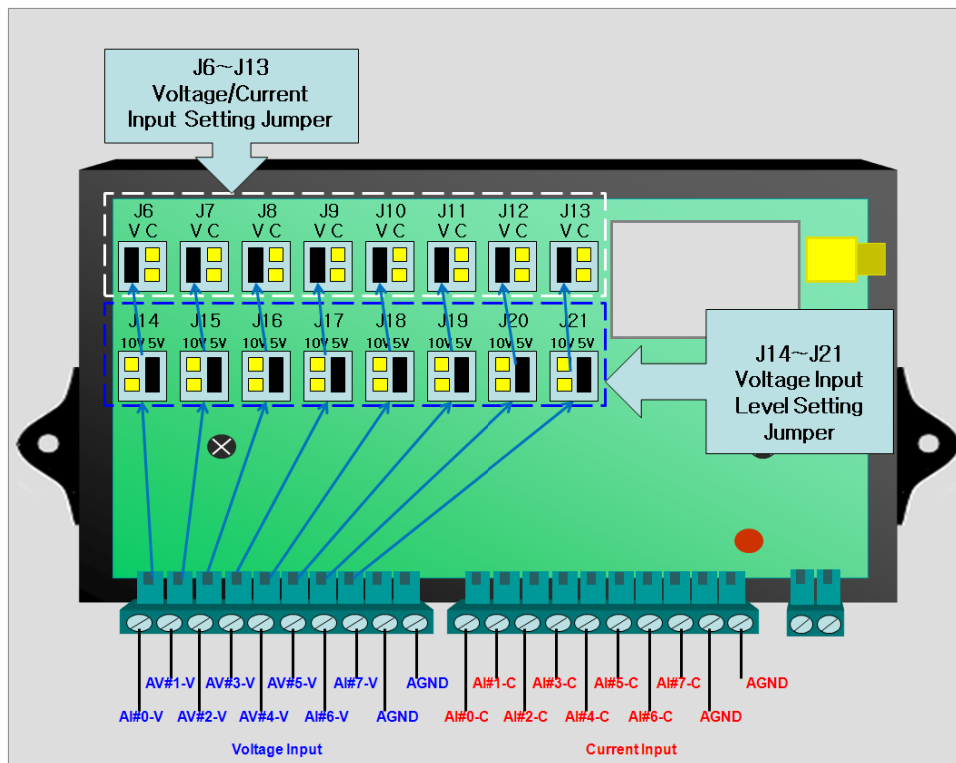
Figure 11. W610A analog input(Voltage) setting concept

Voltage Input : J6 ~ J13 can select voltage/current input receipt. When receiving voltage, set the jumper of J6 ~ J13 as V and adjust the voltage input range(J14 ~ J21), then receive voltage via pin AI#0-V ~ AI#7-V of Analog Input connector.
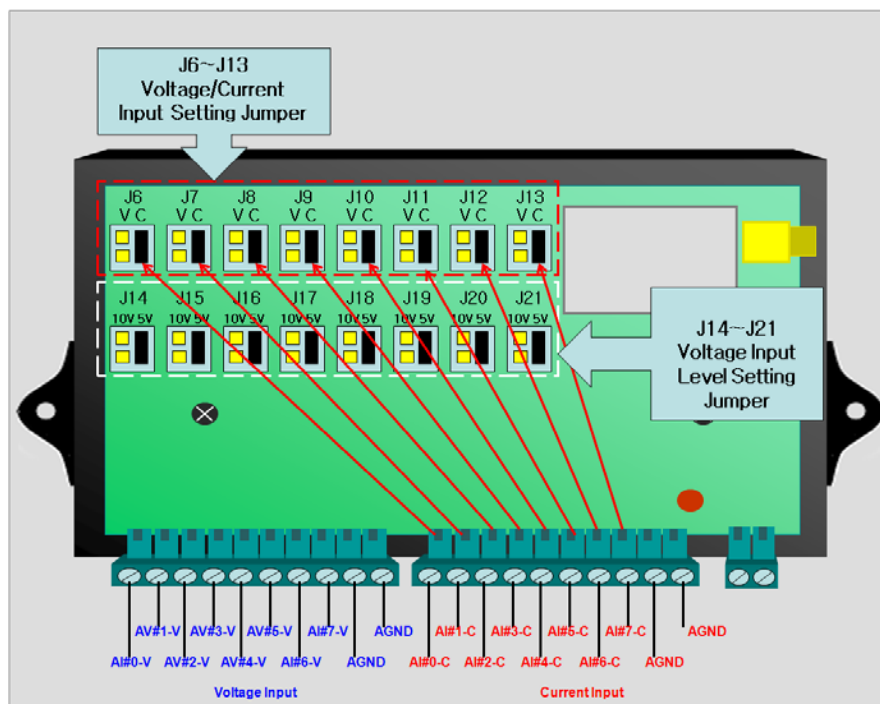
Figure 12. W610A analog input(Current) setting concept

Current Input : J6 ~ J13 can select voltage/current input receipt. When receiving current, set the jumper of J6 ~ J13 as C, then receive current via pin AI#0-C ~ AI#7-C analog input connector.

3.3 Antenna connection

Connect the SMA-P(male) connector antenna to SMA-J(Female) connector of W610A. At purchase, λ/4 dipole antenna is provided.

Figure 13. SMA-J Antenna connector

4. Environment setup

Environment setup can be made through SetModemEnv.exe program. For details, consult the corresponding manual.

4.1 Hardware connection

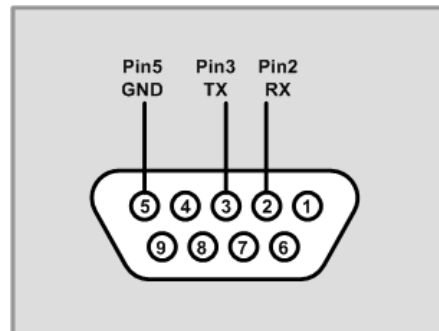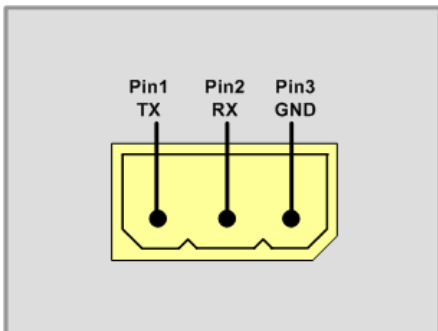Use DBG port for PC connection shown in Figure 14.

Figure 14. Hardware connection-1(W610A)   Figure 15. Hardware connection-2(PC)

For communication frequency adjustment, port and PC must be connected via serial communication program as shown in Figure 14.
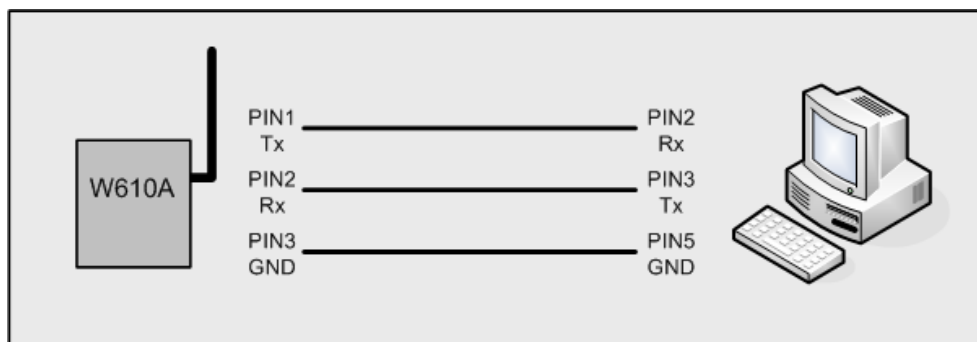

Figure 16. Hardware connection-3

The hardware connection between W610A and PC can be done as shown in Figure 16.

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4.2 Setup list of each mode

4.2.1 PC MODE
- PC/DEVICE MODE Setting : PC MODE Setting
- Channel Setting : Communication Frequency Setting
- Tx Power Level Setting : Communication RF Power Level Setting

4.2.2 DEVICE MODE
- PC/DEVICE MODE Setting : DEVICE MODE Setting
- Channel Setting : Communication Frequency Setting
- Tx Power Level Setting : Communication RF Power Level Setting
- DESTINATION ID Setting : DESTINATION ID Setting

4.2.3 Environment Setting Program
1) PC/DEVICE MODE Setting(MODE Setting)
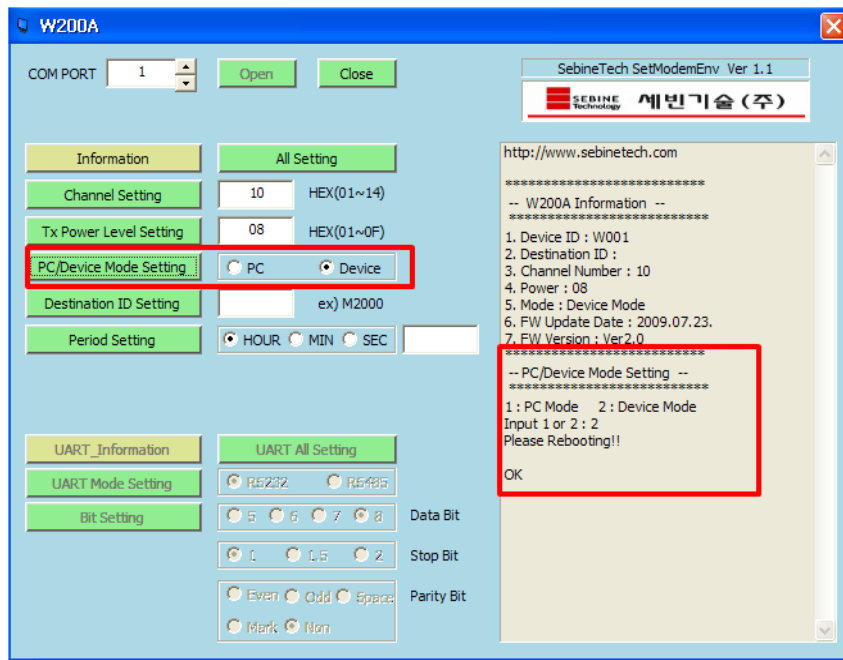
Figure 17. Environment Setting Program-MODE Setting

W610A

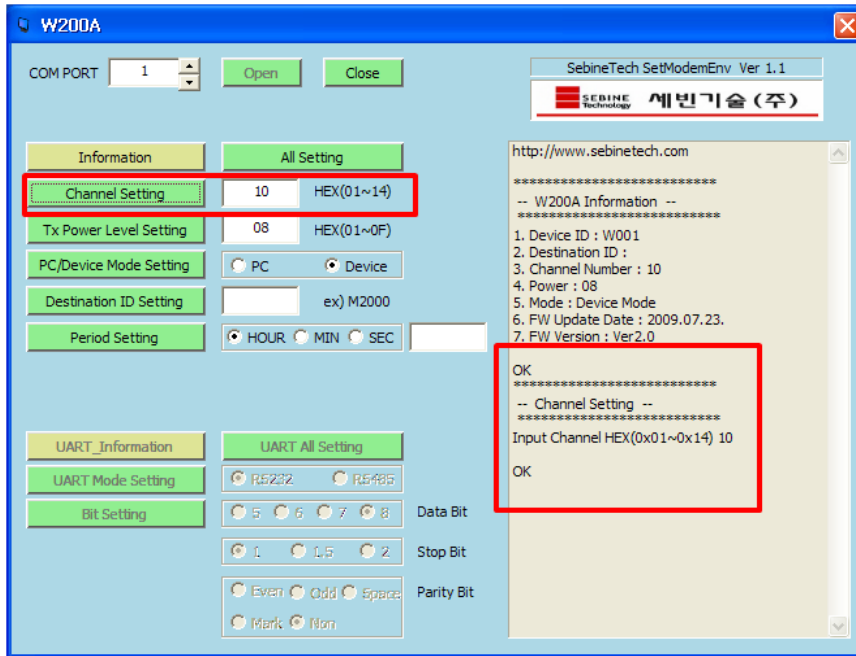2) Channel Setting(Communication Frequency Setting)

Figure 18. Environment Setting Program-Channel Setting

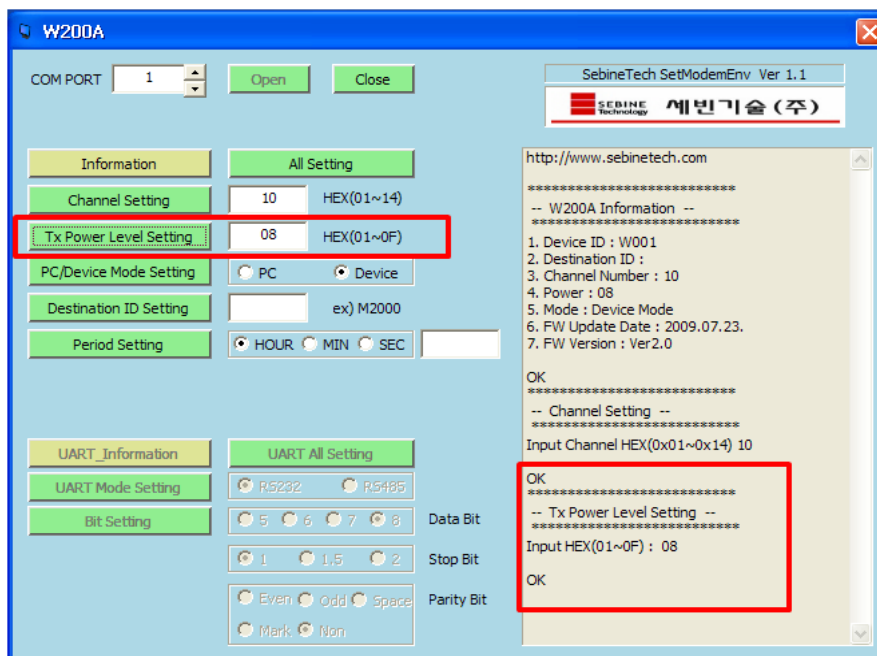3) Tx Power Level Setting(Communication RF Power Level Setting)

Figure 19. Environment Setting Program-Tx Power Level Setting

W610A
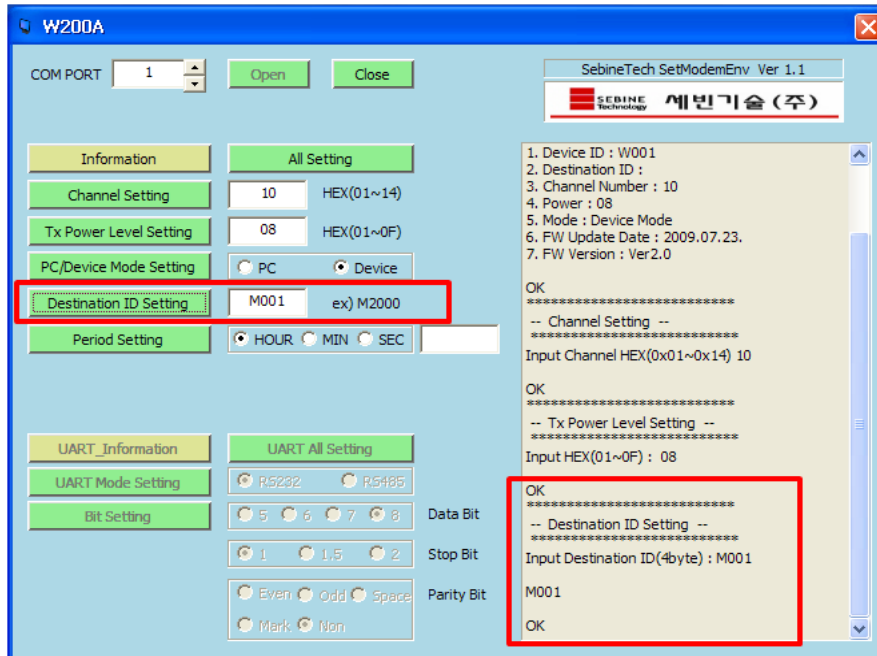
4) DESTINATION ID Setting(DESTINATION ID Setting)

Figure 20. Environment Setting Program-DESTINATION ID Setting

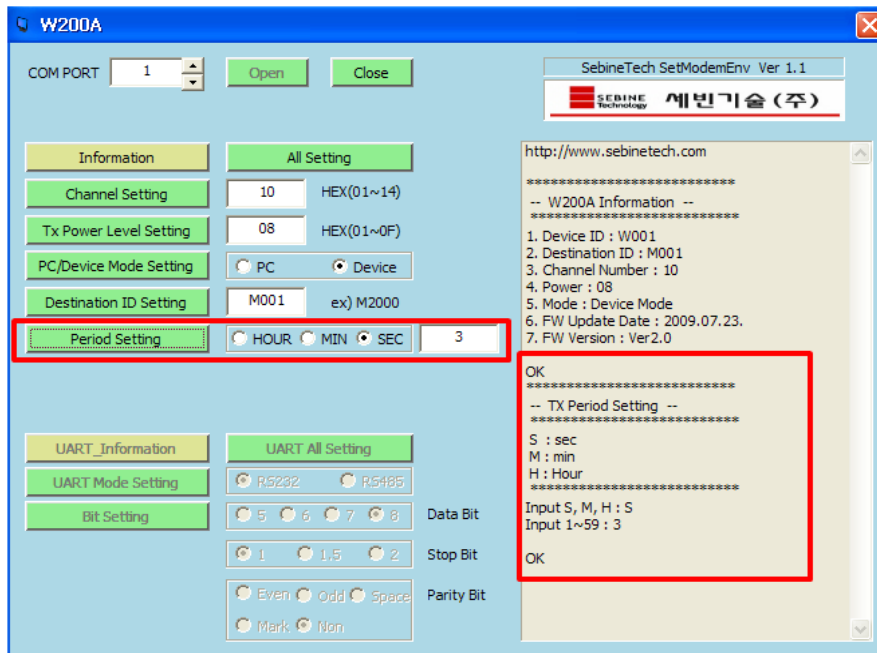5) Period Setting(TX Period Setting)

Figure 21. Environment Setting Program-Period Setting

5. Examples

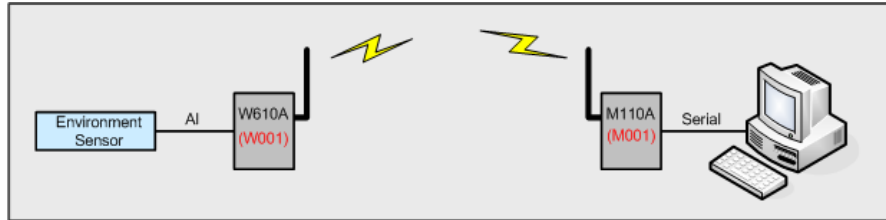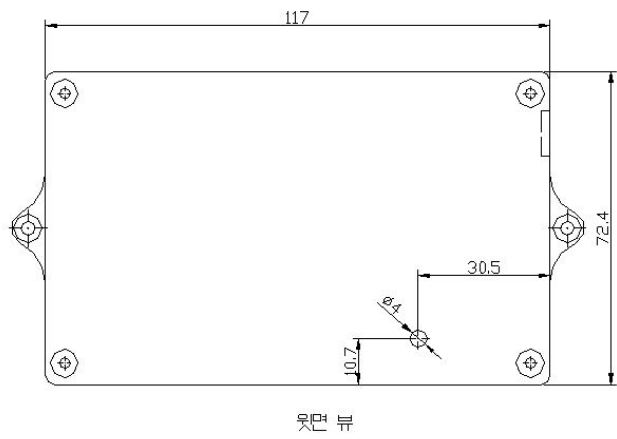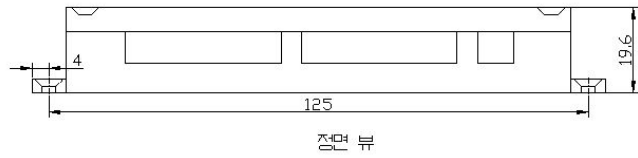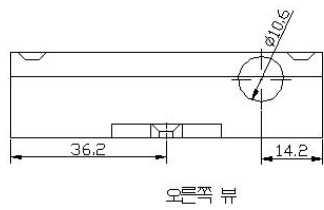(EX 1) W610A(PC MODE/DEVICE MODE) to M110A(PC Mode) Communication

Figure 22. W610A to M110A Communication Example

W610A

Appendix 1. Dimension

오른쪽 뷰

정면 뷰

윗면 뷰

W610A

Appendix 2. Document Information

Version	H/W Version	Description
1.0	RF1-AE-AI8CH Ver1.3	04/12/2013 - Initial Release Version

W610A

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