ZS-6822 Series
LAN/DIO Adapter

User's Manual

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1.Outline

ZS-6822 is a unit that communicates digital I/O signal and LAN. It is possible to be connected to PC with LAN interface, and equipment control and data collection of BCD output measuring the equipment can be done.
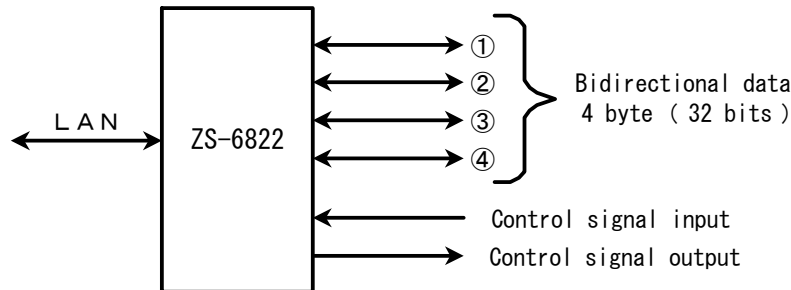
2.Feature

① It is possible to be easily measurement controlled with a laptop computer.
② There are 4 ports (8 bits/port) for digital I/O signals, and I/O can be selected for each port.
③ In addition to data, control lines are prepared so that it can be synchronized with external device.

3.Specification

3.1.Operation environment
➢ Equipment with LAN port.

3.2.LAN
➢ Standard： IEEE802.3
➢ Type： 10BASE-T or 100BASE-TX（Automatic switching）
➢ Access control : CSMA/CD
➢ Modulation / Coding： Baseband / Manchester coding 4B5B, NRZ
➢ Transmission speed： 10BASE-T→10Mbps, 100BASE-TX→100Mbps
➢ Transmission cable： 2 pair 4-core UTP category 5
➢ Impedance： 100Ω
➢ Connector： RJ45 8 pin modular connector, compliant with ISO8877
➢ Maximum segment length：100m
➢ Wiring form： Star
➢ Supported protocols： ARP, TCP/IP, UDP/IP, Telnet, ICMP, SNMP, DHCP, BOOTP
TFTP, AutoIP, HTTP

3.3.Digital I/O port

  ➢ Port： 4 port (8 bit/port)
 ➢ I/O level： Fan-in=1, Fan-out=10
        Pull-up resistor 10KΩ, it is possible to be pull-down.
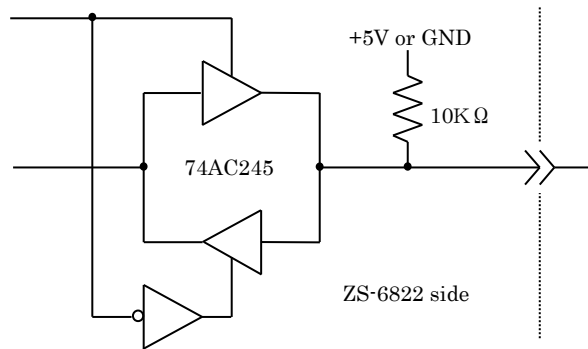
3.4.Product specification

Model	ZS-6822P	ZS-6822S
Feature	Printed circuit boarded type	Small case built-in type
Data connector	50-core flat cable	50-core flat cable
Power supply	DC4.75V to 5.25V 100mA or less	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	150×100×30H	150×100×30H
Accessary	Data connector FAS-5001-2101-0BF DC power cable	Data connector FAS-5001-2101-0BF

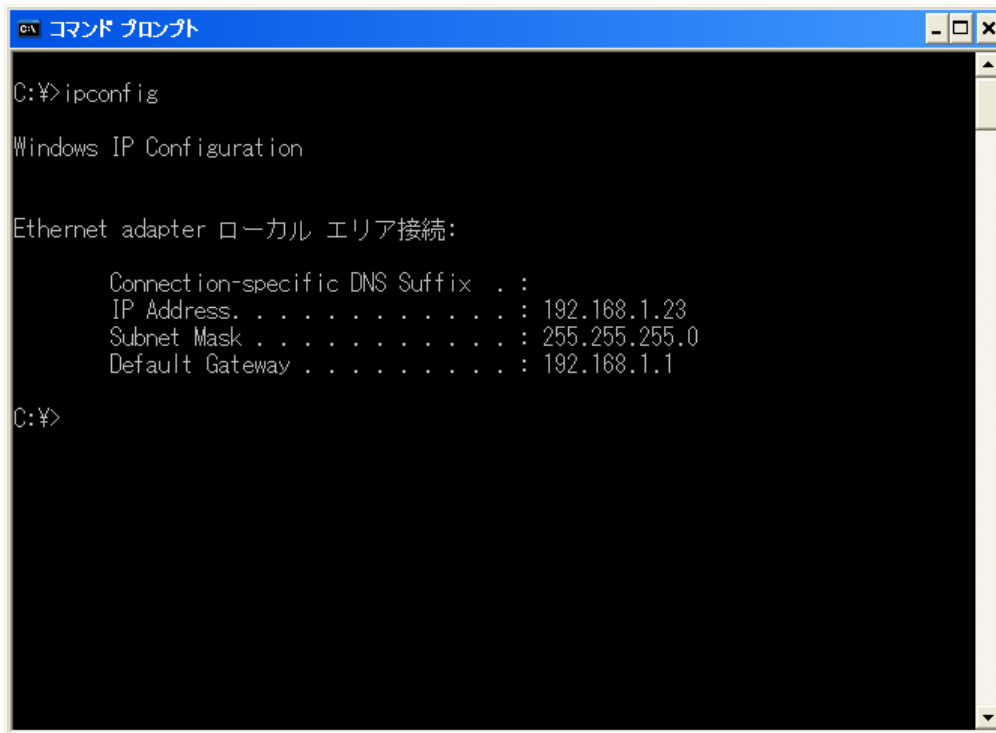### 3.5.Appearance
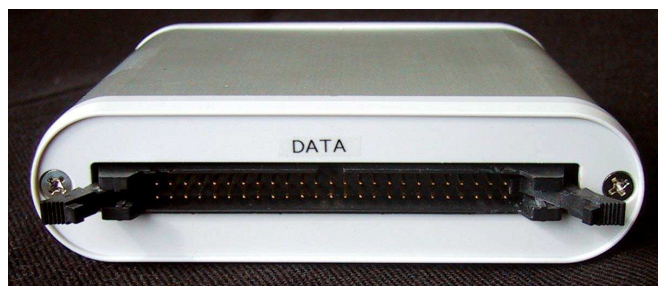
4.Setting

4.1.IP Address setting

1, Run the command prompt(MS-DOS prompt) on the host PC and execute "ipconfig".
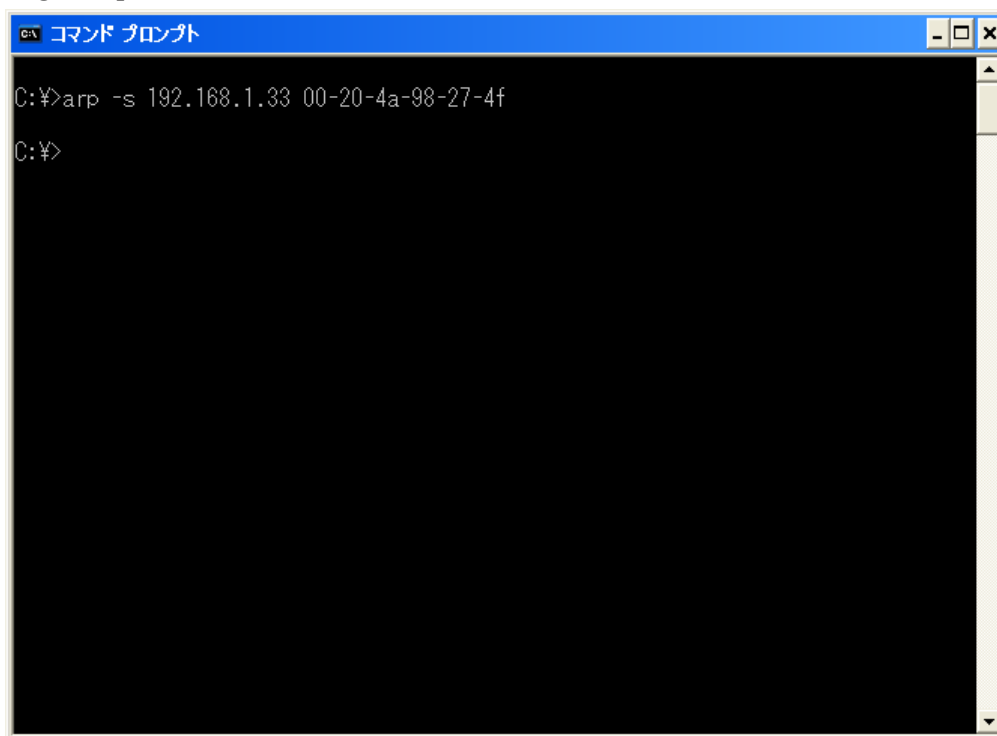
2, You can see the numbers of your network part as result of the "ipconfig" command. In this example, the network part is "192.168.1". The host part numbers are unused numbers. To determine the IP address of ZS-6822, the network part of the IP address is selected as described as above. The combination of the network part and the host part becomes the IP address of ZS-6822.

4.2.Temporary IP Address setting
1, Connect ZS-6822 and LAN.
2, Turn on the power of ZS-6822.
3, Assume that the address determined in the above "192.168.1.33" and MAC address is "00-20-4A-98-27-4F". Run the command prompt(MS-DOS prompt) on the PC and set the temporary IP address. This work is set only the host PC and nothing is set for ZS-6822.
   e.g) arp -s 192.168.1.33 00-20-4a-98-27-4f

```
コマンド プロンプト                                          - □ ×

C:¥>arp -s 192.168.1.33 00-20-4a-98-27-4f

C:¥>
```
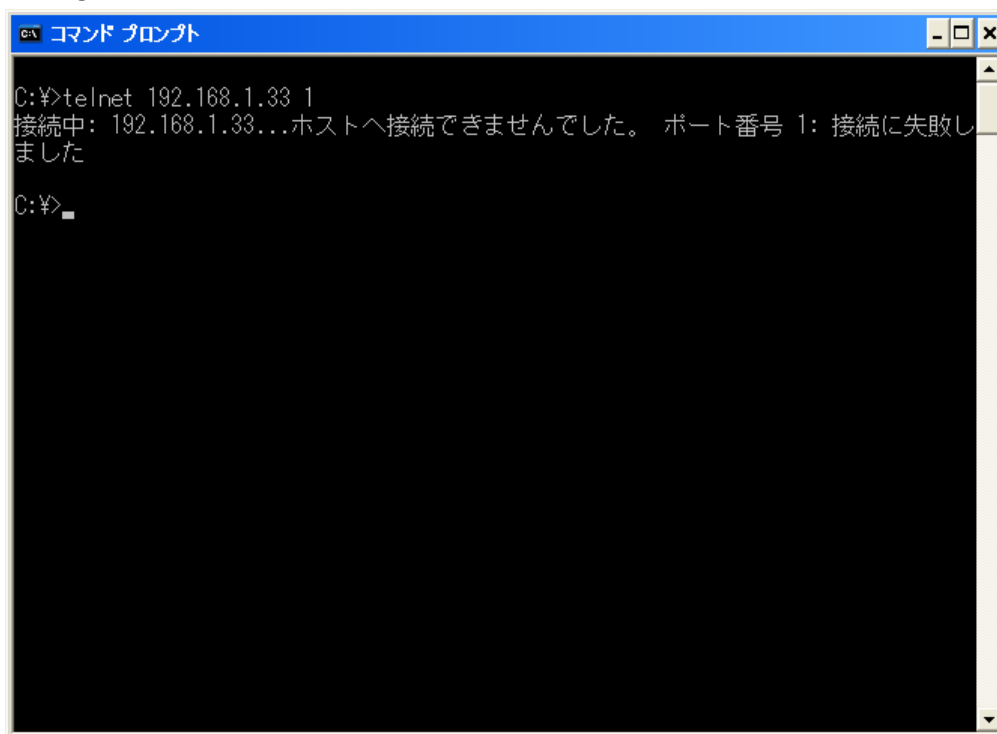
4.3.IP Address setting of ZS-6822

1, At the command prompt, enter the following command and execute it.
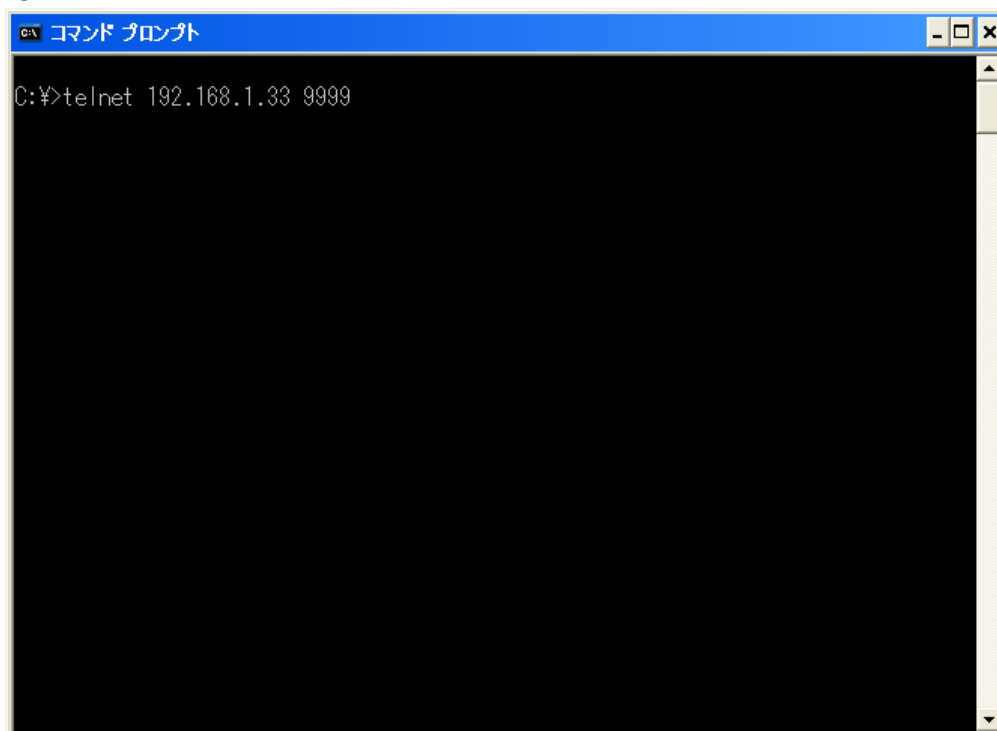
   e.g) telnet 192.168.1.33 1

   An error message such as "Can not connect to host" is displayed but disregard this message.
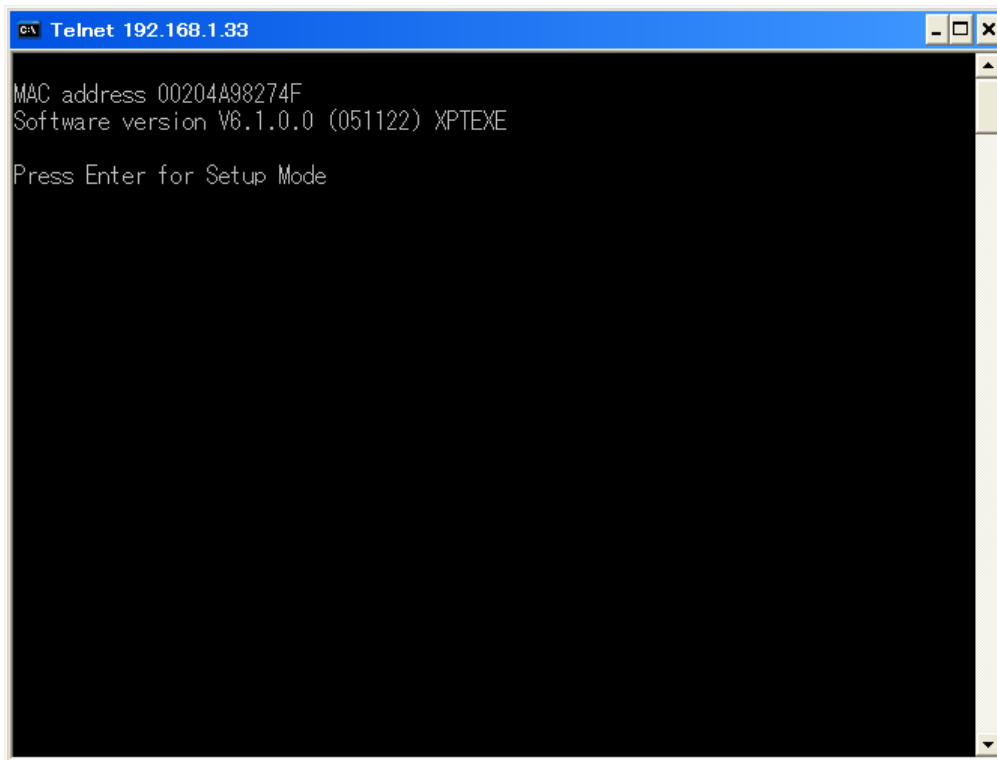
2, At the command prompt, enter the following command and execute it.

   e.g) telnet 192.168.1.33 9999

The following screen will be displayed. Please press the return key. If you leave it without pressing the return key, a message such as "The connection with the host has been disconnected" is displayed, and telnet will be ended.
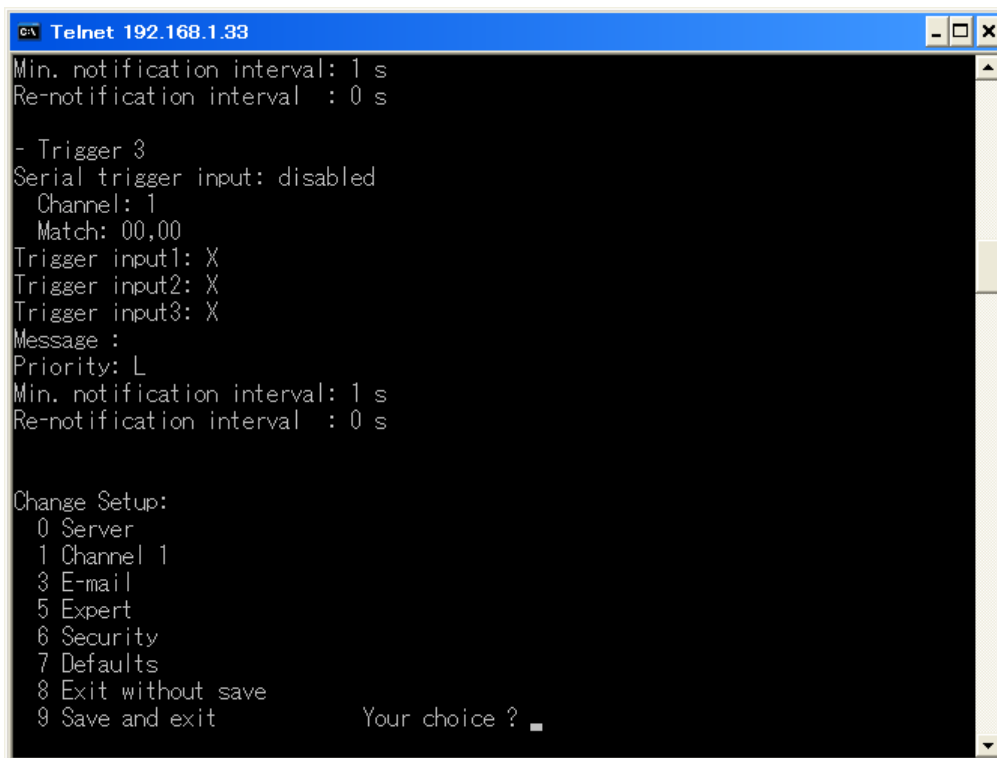
```
Telnet 192.168.1.33                                           _ □ ×

MAC address 00204A98274F
Software version V6.1.0.0 (051122) XPTEXE

Press Enter for Setup Mode
```

3, The following screen will be displayed.
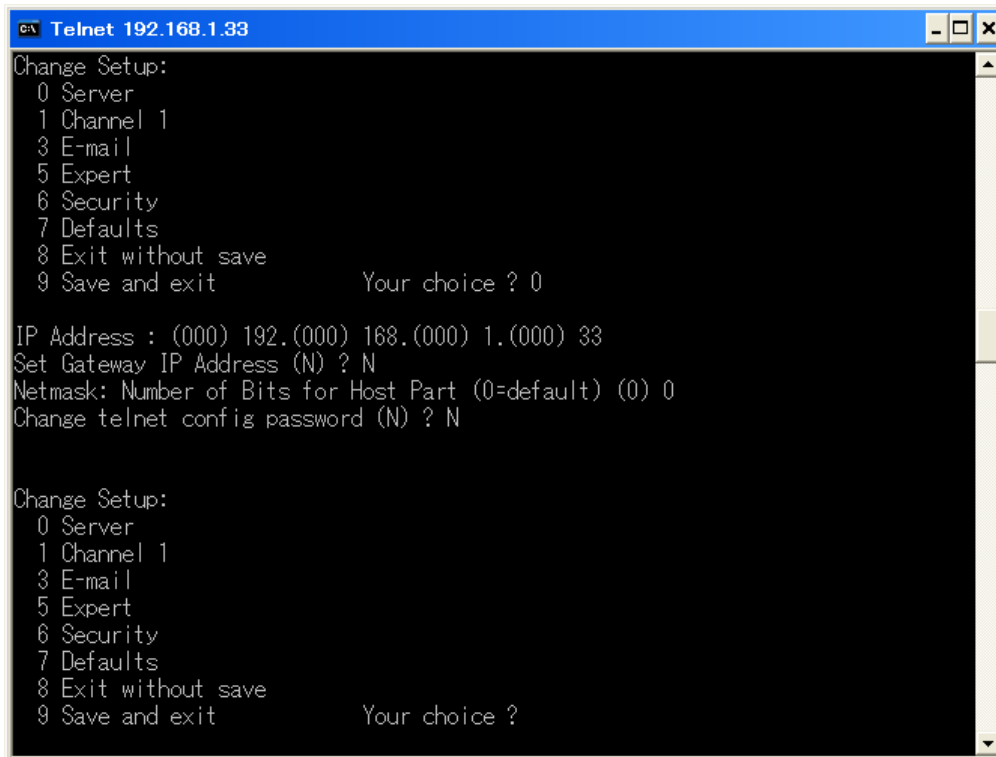
```
Telnet 192.168.1.33                                           _ □ ×
Min. notification interval: 1 s
Re-notification interval  : 0 s

- Trigger 3
Serial trigger input: disabled
  Channel: 1
  Match: 00,00
Trigger input1: X
Trigger input2: X
Trigger input3: X
Message :
Priority: L
Min. notification interval: 1 s
Re-notification interval  : 0 s


Change Setup:
  0 Server
  1 Channel 1
  3 E-mail
  5 Expert
  6 Security
  7 Defaults
  8 Exit without save
  9 Save and exit          Your choice ? _
```

4, "Your choice?" is displayed. Please enter "0". You will be prompted to enter an IP address. Enter the IP address of ZS-6822 decided in the above "IP Address setting" here.

5, Since "Your choice?" will be displayed again, enter "9" and save the IP address setting value on the ZS-6822.

IP Address setting of ZS-6822 is done.

5.「COM Port Redirector for Win32」

Describe the installation of "COM Port Redirector for Win32" made by Rantronix, inc.

5.1.「COM Port Redirector for Win32」

1,Whe you execute "CprDotNetDL 4.1.0.2_Web.exe" in the folder "LANTRONIX" folder on the CD-ROM, the following screen will be displayed.
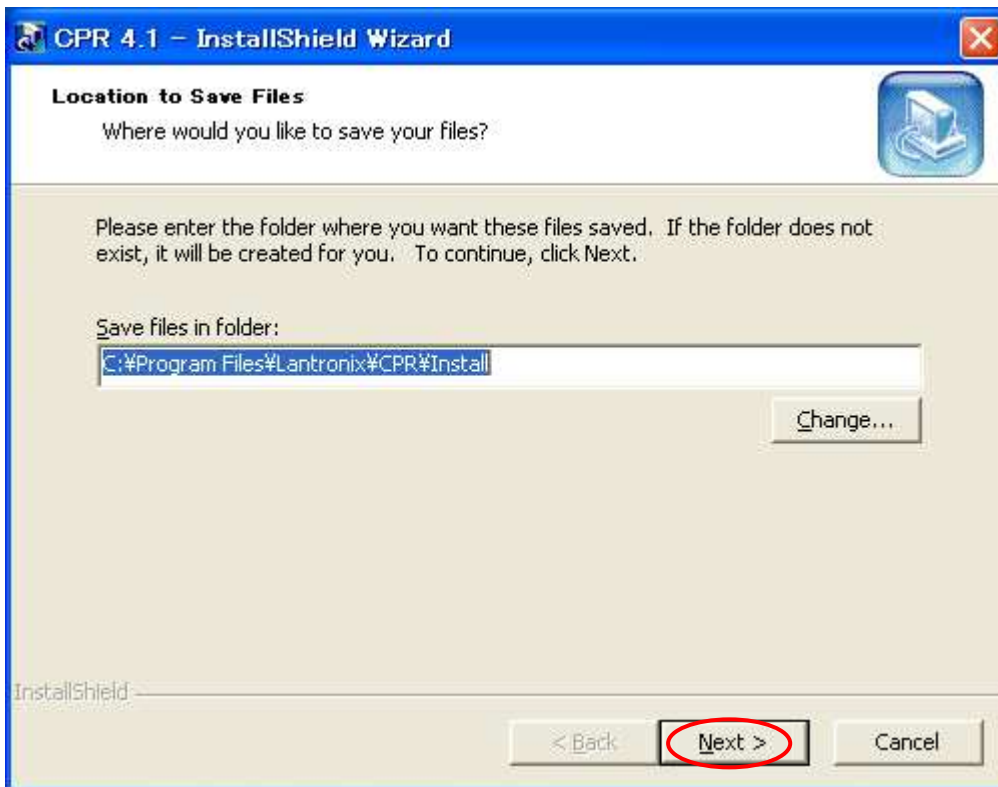
If there is no change in the place to save, please click the "NEXT" button.

2,When ".NET Framework 2.0" is not installed, the following screen will be displayed.
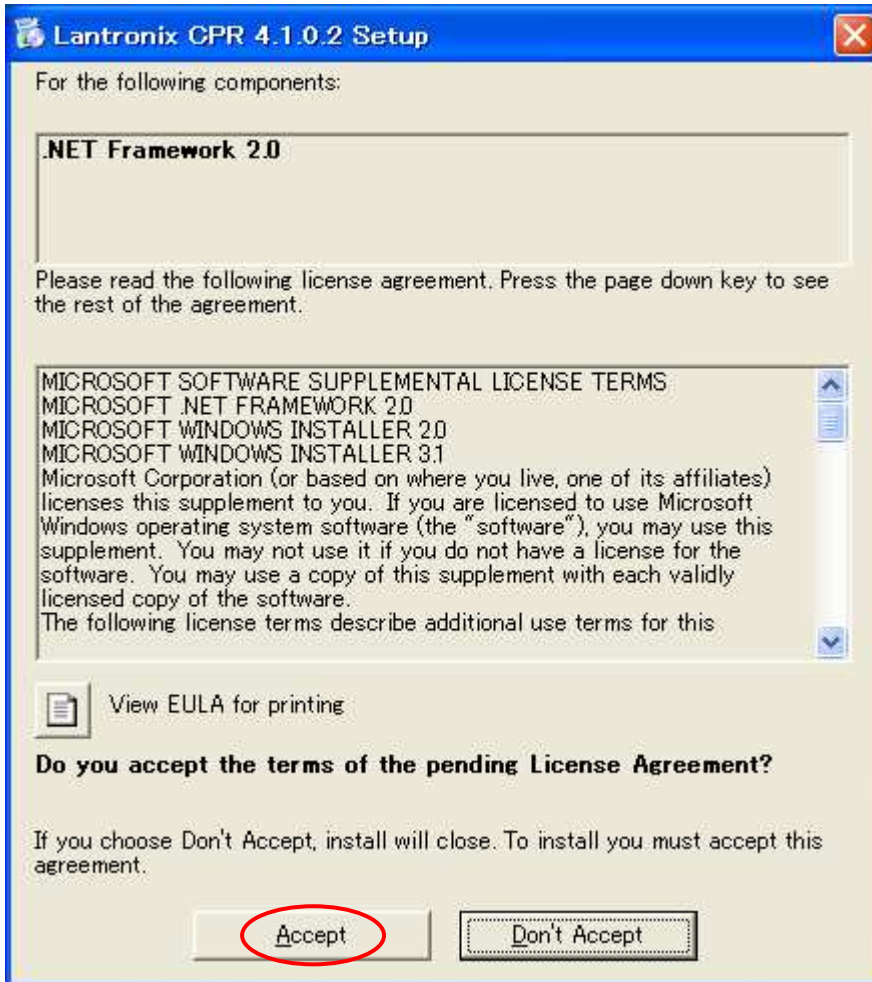
Click "Accept" button.

3,The following screen will be displayed. Download and installation will be started.
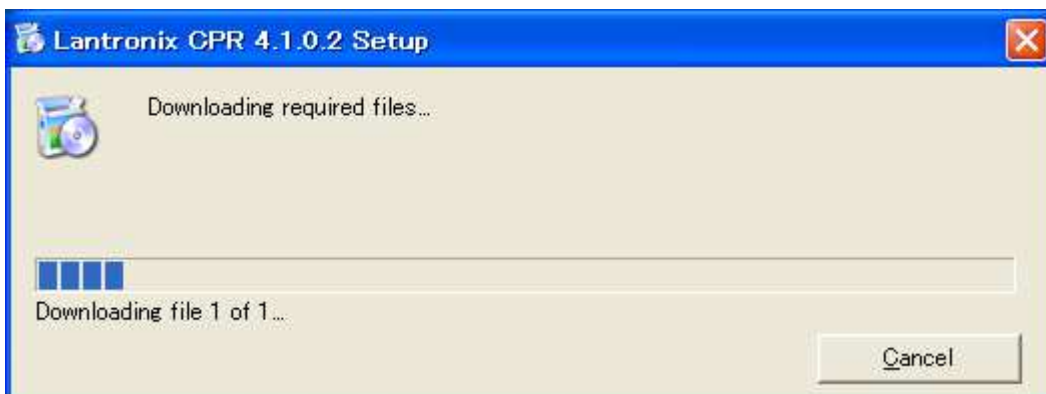
4,The following screen will be displayed and click the "NEXT" button.

5,The following screen will be displayed. If there is no change in the place to save, click the "NEXT" button.
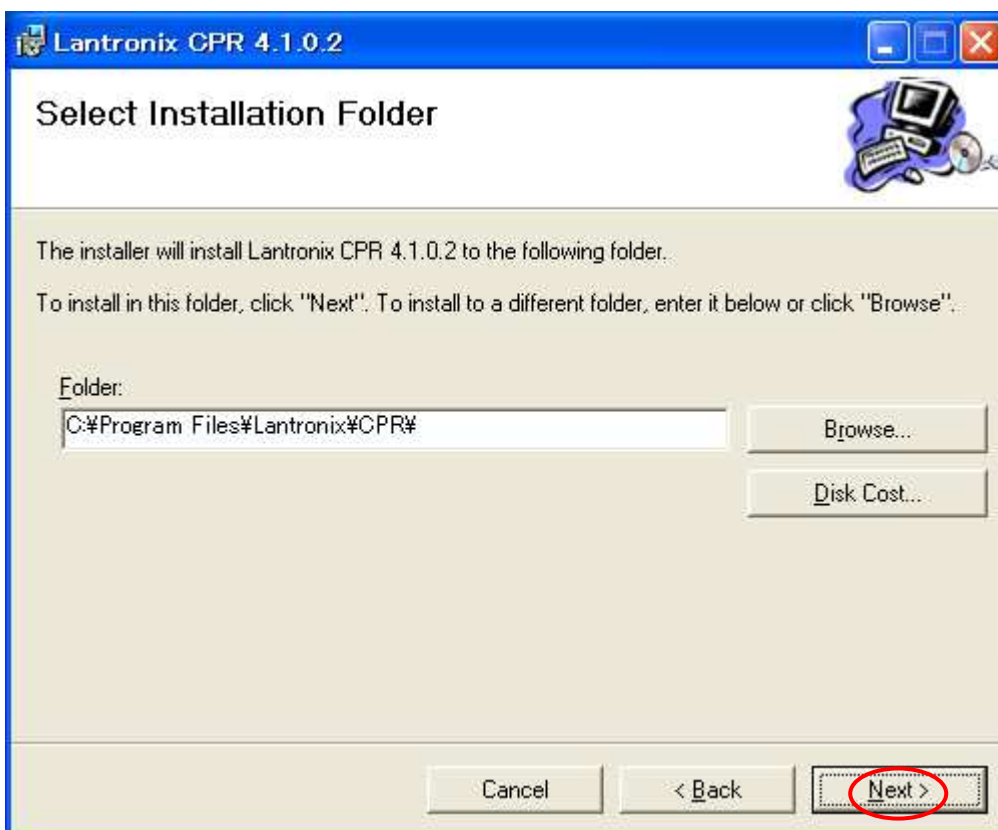
6,The following screen will be displayed, please click "NEXT" button.
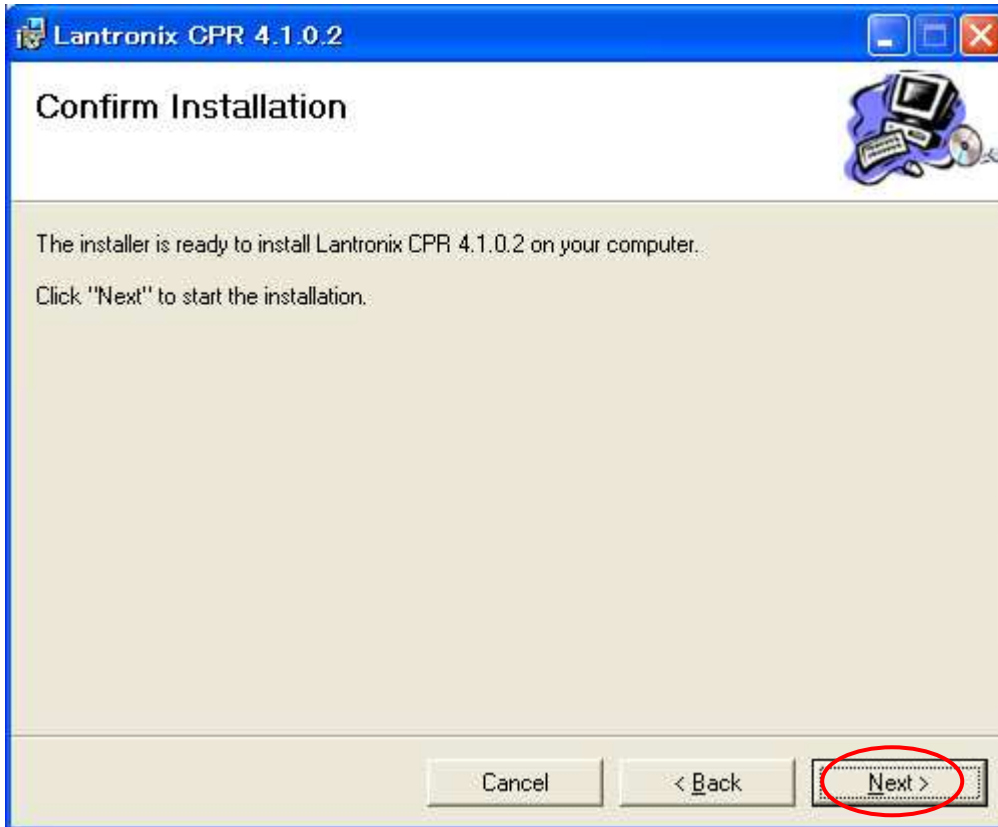
7,The following screen will be displayed. There is a notice message but click the "Continue" button.
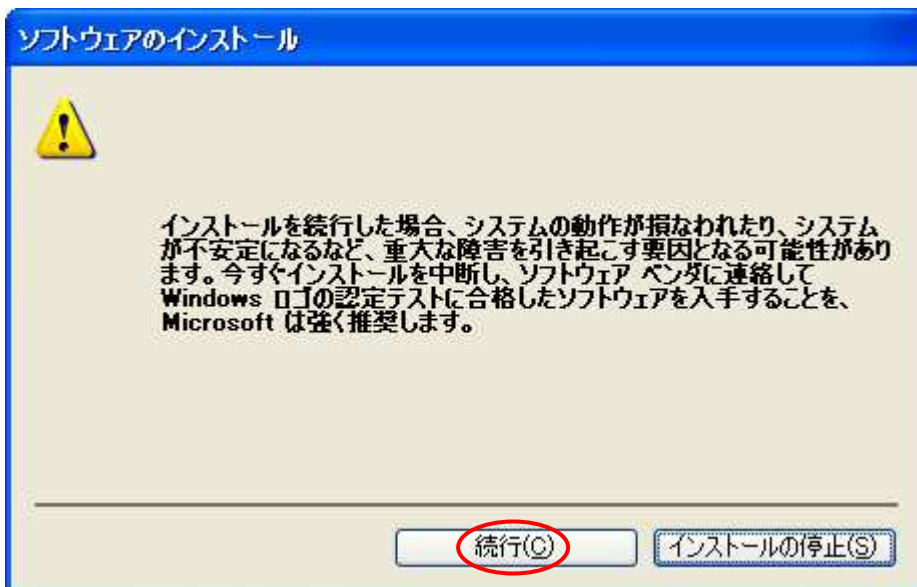
8,The following screen will be displayed. Click the "Close" button. Installation of the program is completed.
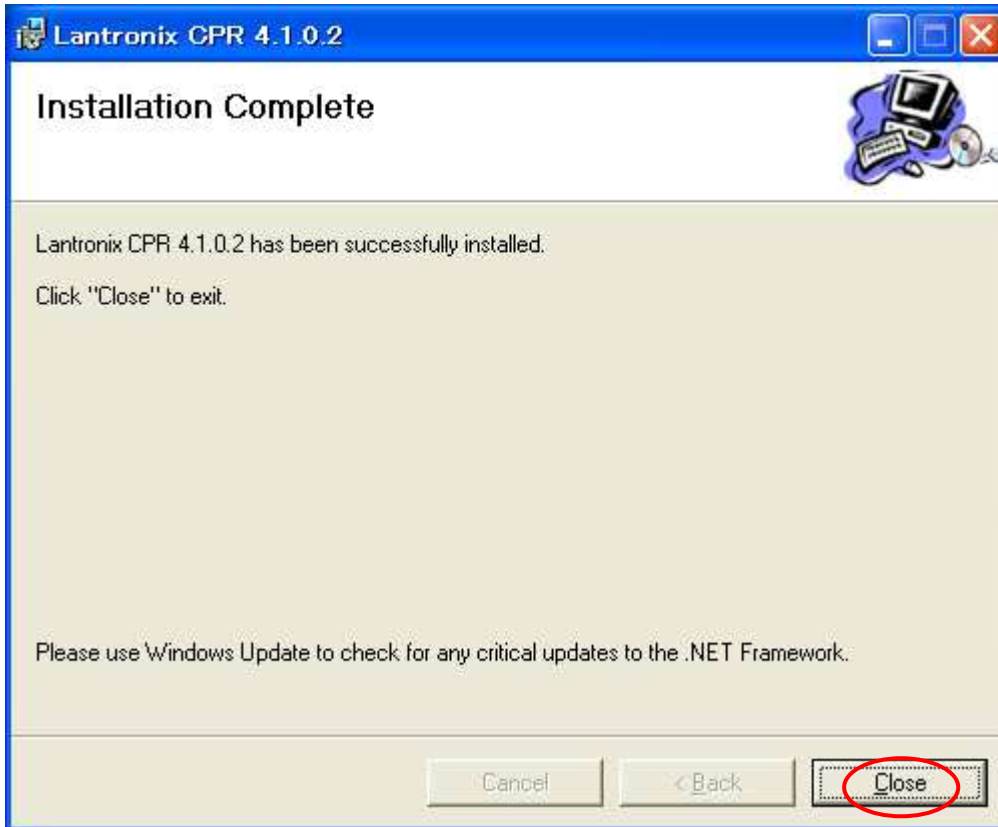
5.2.Virtual COM port setting

1,From the start menu, select "Program" >> "Lantronix" >> "CPR 4.1" >> "CPR Manager" and start it.
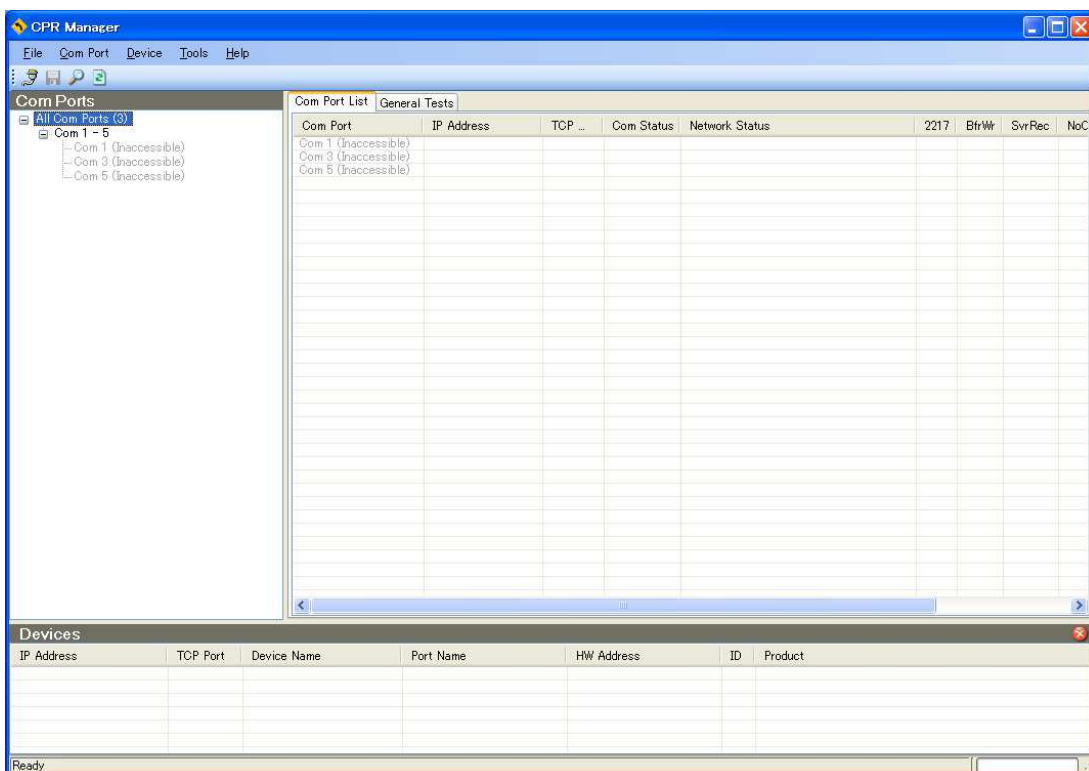
2,When "Com Port" >> "Add and Remove" is selected, the following screen will be displayed. On this screen, check the port number to be set as the virtual COM port and press the "OK" button.
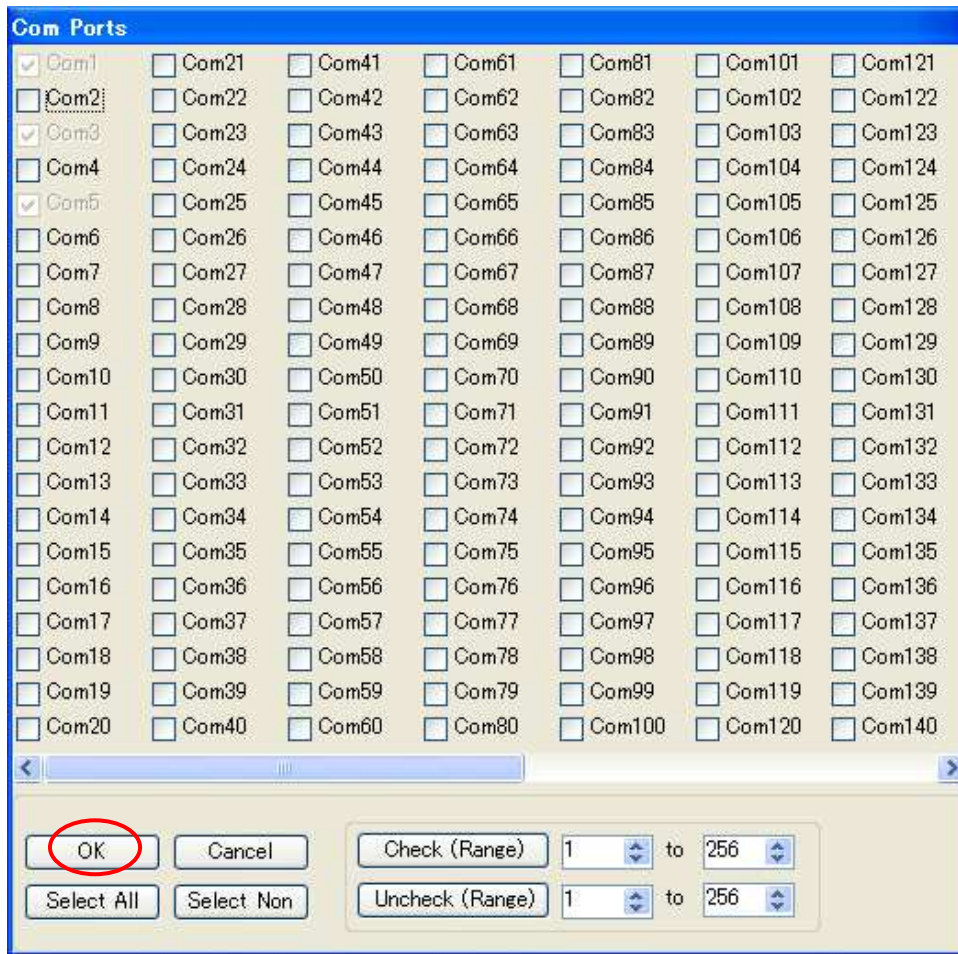
3,"Com ?(New)" will be added. Select it and set "Host" and "TCP Port". Please set the IP address of ZS-6822 to "HOST" and set 14000 to "TCP Port".
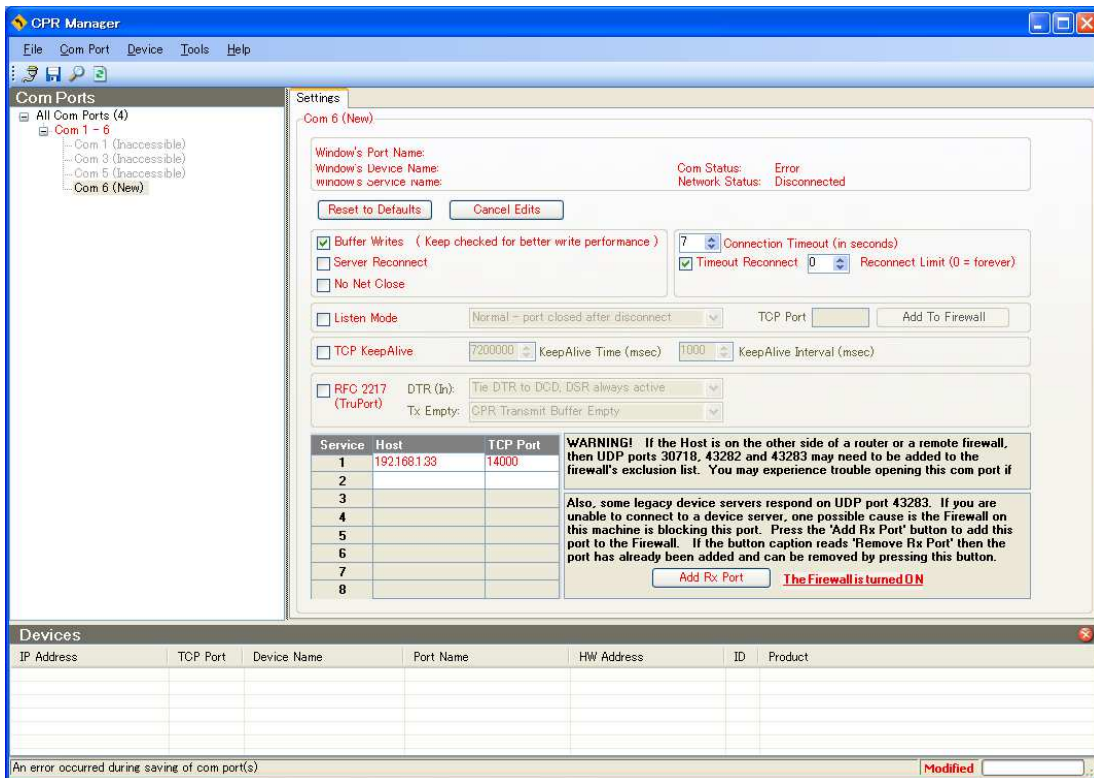
4,After setting is completed, select "Com Port" >> "Save setting". The following screen will be displayed, click "Yes" button.。
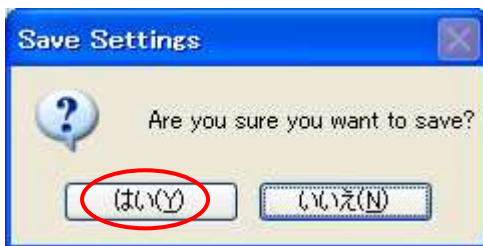
Click "Continue" button.
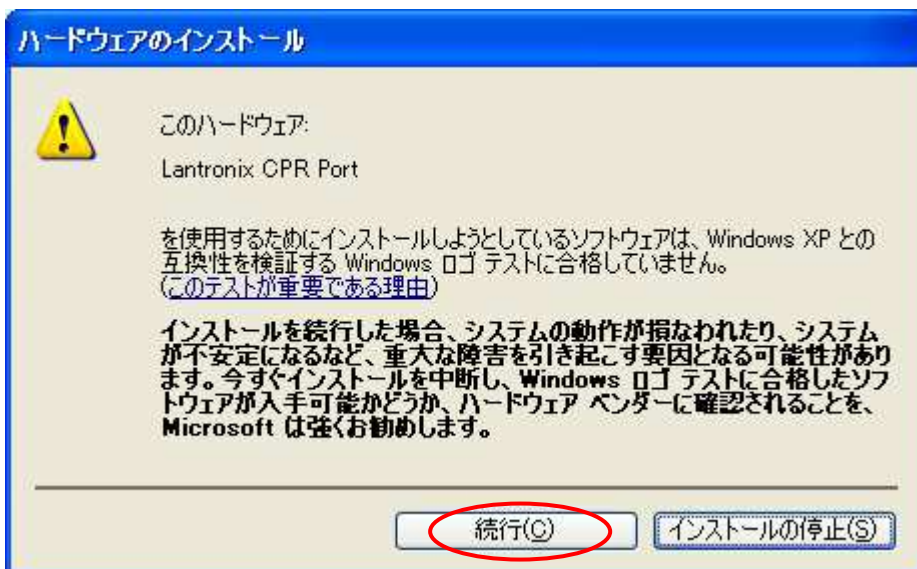
The following screen will be displayed. Setting is completed. Please close this application.
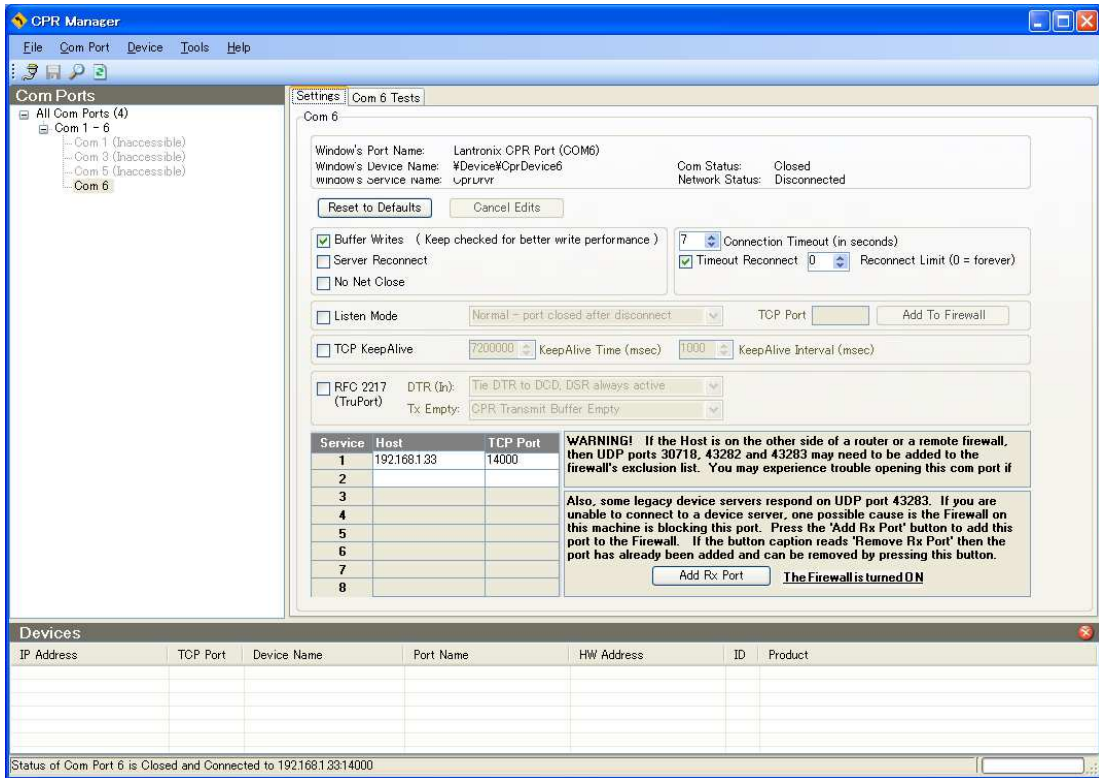
6.Operation

6.1.Transmission data method

① Data code

Data is transferred in ASCII code, and one character is converted to 4-bit binary code.

4-bit binary					LAN Data
8	4	2	1		HEX
0	0	0	0		0
0	0	0	1		1
0	0	1	0		2
0	0	1	1		3
0	1	0	0		4
0	1	0	1		5
0	1	1	0		6
0	1	1	1		7
1	0	0	0		8
1	0	0	1		9
1	0	1	0		A
1	0	1	1		B
1	1	0	0		C
1	1	0	1		D
1	1	1	0		E
1	1	1	1		F

② The data sent from the PC is transferred sequentially from smaller numbers of the port set for output. Port numbers set for input are sequentially taken from smaller numbers and sent to the PC. The data of each port is set or taken 4 bits.

> e.g) When ports 1 and 2 are input and port 3 and 4 are set to output.

Order to send to PC	Port data	Order to send to ZS-6822	Port data
1	Port_1 D7 to D4	1	Port_3 D7 to D4
2	Port_1 D3 to D0	2	Port_3 D3 to D0
3	Port_2 D7 to D4	3	Port_4 D7 to D4
4	Port_2 D3 to D0	4	Port_4 D3 to D0
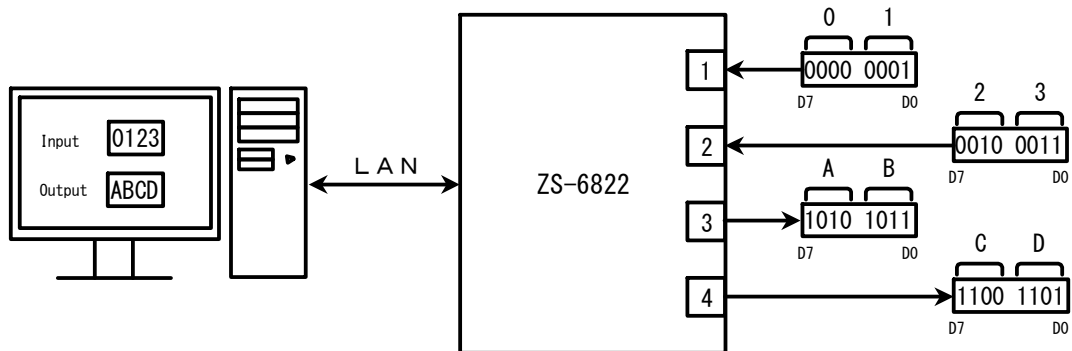
6.2.Control signal

A control signal is prepared so that it can be synchronized with the connected equipment.

Signal	Direction	Description
STB	OUT	The adapter completes reception of all data from the PC and outputs a pulse signal after outputting to the port. External devices can use this signal for Latch-Clock etc. as necessary.
TRG	OUT	Pulse signal is output to the external device by "T" command.
CLR	OUT	Pulse signal is output to the external device by "C" command. It is possible to be used for resetting external devices.
LAH	IN	When the latch circuit is enabled, latch input data with this signal. Input a signal with a pulse width of 500μs or more.

Note) The pulse width of the output can be set by command.
    The pulse width is 10μs, 100μs, 1ms, 10ms, 100ms.

6.3.I/O operation

① Output data from PC to port.

➢ Continuous output

Data is set in 4 bits to the port set as output, after receiving data from the PC. The STB pulse is output after setting the data to the output port.

Note) If data is sent more than amount of data that is set on the output port, extra data will be discarded. If data is sent less than amount of data that is set on the output port, the data sent last time will remain in the space.
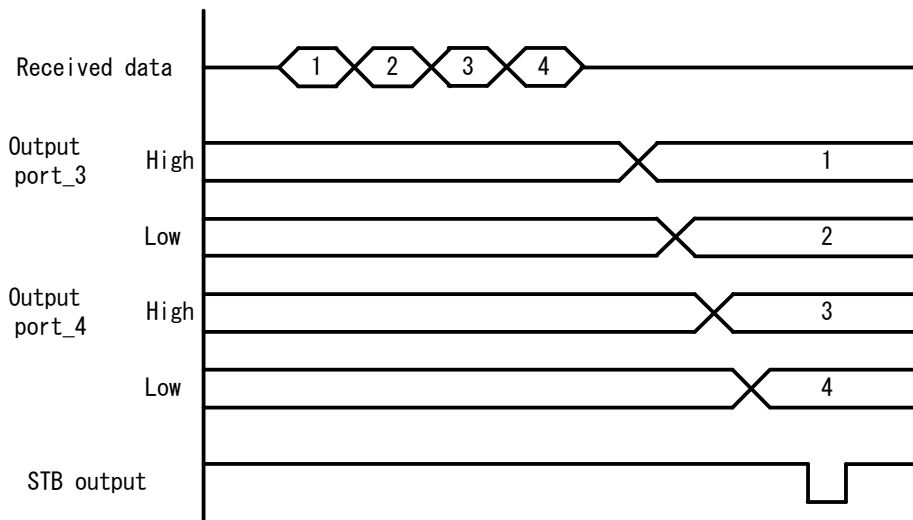
➢ Pulse output

Data is set 4 bits to the port set as output after receiving data from the PC. The output port data is output for the specified pulse width.

② Send data input from port to PC.

➢ Without latch

When the ZS-6822 received the "R" command from the PC, it takes in the data from the input port at that time and sends it to the PC.

➢ With latch

Data from the input port is taken when the LAH input is LOW. When the ZS-6822 receives the "R" command from the PC, it sends the captured data to the PC.
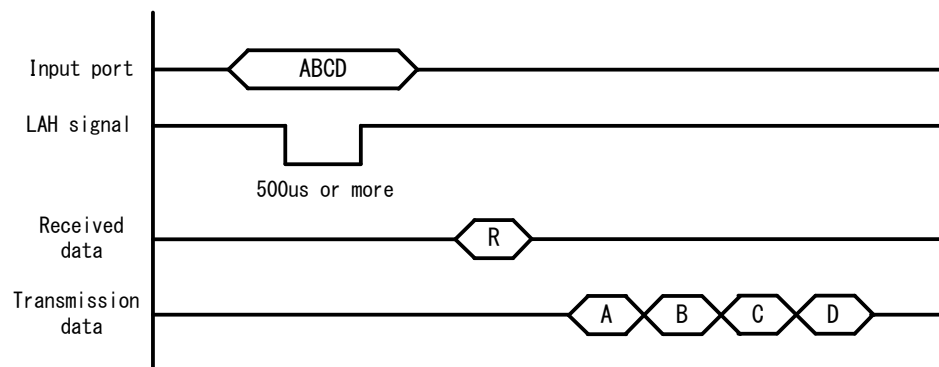
6.4.Command

ZS-6822 recognizes and controls the first byte of data as a control command. Be sure to add a delimiter(CR+LF) to the end of the data string and transmit. If there is a character string other than the command at the end of the data, NG will be sent as return value.

Command	Function
R	Data is read from all ports as input.
W	Data is written to the port set as output.
T	Pulse is output from the TRG signal.
C	Pulse is output from the CLR signal.
D	Configure port I/O setting.
P	Set the pulse width of the control signal.
L	Set the presence/absence of latch circuit.
U	Set the output signal.
B	Execute positive/negative logic.

6.4.1. R command

➢ Function

Data is read from all ports set as input. For example, if the number of input ports is set to 4, 8bytes of data will be sent from ZS-6822 when "R" command is executed.

➢ Format

R CR LF

➢ Return value

xxxx・・・・CR LF : Data as same as the number set for the input port will be sent.
"x" is an ASCII code from 0 to F.

NG CR LF : There is no input port.

6.4.2. W command

➢ Function

Data is written to the port set as output. For example, if the number of output ports are set to 4, 8byte data is added after "W" command and it is sent to ZS-6822. If data is transmitted less than 8 bytes, the data will be newly changed for the transmitted data and the previous data will be remained in the space. If more than 8 bytes are transmitted, it will be discarded.

➢ Format

Wxxxx・・・・CR LF: Write output data to the output port after "W".
"x" is ASCII code from 0 to F.

➢ Return value

OK CR LF: Data output is completed to the output port.
NG CR LF: No output port, data character error.

6.4.3. T command

➢ Function

Pulse is output to the control signal "TRG".

➢ Format

T CR LF

➢ Return value

OK CR LF: Pulse output is completed.

NG CR LF: Pulse output error.

6.4.4. C command

➢ Function

Pulse is output to control signal "CLR".

➢ Format

C CR LF

➢ Return value

OK CR LF: Pulse output is completed.

NG CR LF: Pulse output error.

6.4.5. D command

➢ Function

I/O setting of 4 ports is executed.

All ports are set to input when turn on the power of ZS-6822.

➢ Format

Dxxxx CR LF: Set in the order of port_1, port_2, port_3, port_4 after "D".

"x" is "I" for IN for input, "O" for OUT for output.

➢ Return value

OK CR LF: Setting is completed.

NG CR LF: I/O setting error, data character error.

6.4.6. P command

➢ Function

The pulse width of the control signals "STB" "TRG" "CLR" can be selected from 10µs, 100µs, 1ms, 10ms, 100ms.

When powering on the ZS - 6822, it is set to 10µs.

➢ Format

Px CR LF: "x" is number. The assignment of number is as follows.

$0 \cdots 10\mu s, \ 1 \cdots 100\mu s, 2 \cdots 1ms$

$3 \cdots 10ms, \ 4 \cdots 100ms$

➢ Return value

OK CR LF: Setting is completed.

NG CR LF: Setting error, data character error.

6.4.7. L command

➢ function

It is possible to set the presence or absence of the latch circuit when inputting data.

When tuning on the power of ZS-6822, it is set absence of latch circuit.

➢ Format

Lx CR LF: "x" is number. 0: absence, 1: presence

➢ Return

OK CR LF: Setting is completed.

NG CR LF: Setting error, character data error.

6.4.8. U command

➢ Function

Set the signal at the time of data output.

It is set to continuous output when turning on the power of ZS-6822.

Set the pulse width at pulse output, use the "P" command.

➢ Format

Ux CR LF: "x" is number. 0: continuous output, 1: pulse output

➢ Return value

OK CR LF: Setting is completed.

NG CR LF: Setting error, character data error.

6.4.9. B command

➢ function

Execute positive/negative logic setting of the 4 ports.

All ports are set to positive logic when turning on the power of the ZS-6822.

This command should be executed when the port setting is input.

➢ Format

Bx CR LF: "x" is number. 0: positive logic, 1: negative logic.

➢ Return value

OK CR LF: Setting is completed.

NG CR LF: Setting error, character data error.

7.Connector

Data connector FAP-5001-1202-0BF

DATA (CN1)

I/O	SIGNAL	PIN		SIGNAL	I/O
PORT ①	D0	1	2	D0	PORT ②
	D1	3	4	D1	
	D2	5	6	D2	
	D3	7	8	D3	
	D4	9	10	D4	
	D5	11	12	D5	
	D6	13	14	D6	
	D7	15	16	D7	
PORT ③	D0	17	18	D0	PORT ④
	D1	19	20	D1	
	D2	21	22	D2	
	D3	23	24	D3	
	D4	25	26	D4	
	D5	27	28	D5	
	D6	29	30	D6	
	D7	31	32	D7	
IN	LAH	33	34	(NC)	
OUT	STB	35	36	(NC)	
OUT	TRG	37	38	(NC)	
OUT	CLR	39	40	(NC)	
	(NC)	41	42	GND	
	(NC)	43	44	GND	
	(NC)	45	46	GND	
	(NC)	47	48	GND	
	(NC)	49	50	GND	

Note) I/O indicates the direction of the digital between ZS-6822 and I/O device.

　　　IN 　　　：ZS-6822 ← External device

　　　OUT 　　：ZS-6822 → External device

　　　PORT 　：Bidirectional data bus.

　　　　　　　　It is possible to switch between IN and OUT with PC.

8.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