ZS-6822 Series LAN/DIO Adapter

User's Manual



Zip code: 183-0027 2-13-37, Honmachi, Fuchu, Tokyo, Japan TEL: +81-(0)42-368-2126 FAX: +81-(0)42-364-0067 URL <u>http://www.zenisu.co.jp/</u>

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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 $10 \text{K}\Omega$, it is possible to be pull-down.



3.4.Product specification

Model	ZS-6822P ZS-6822S		
Feature	Feature Printed circuit boarded type Small case built-in t		
Data connector	a connector 50-core flat cable 50-core flat cable		
Power supply	er supply DC4.75V to 5.25V 100mA or less DC4.75V to 5.25V 100mA or less		
Environment	Temperature 0°C to 50°C Humidity 85%or less	Temperature 0°C to 50°C Humidity 85% or less	
Storage Temp	–20°C to 80°C	−20°C to 80°C	
Size	150 × 100 × 30H	150 × 100 × 30H	
A	Data connector FAS-5001-2101-0BF	Data connector FAS-5001-2101-0BF	
Accessary	DC power cable		

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



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.



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: O 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.

Telnet 192.168.1.33	- 🗆 :	×
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 ? 0		
IP Address : (000) 192.(000) 168.(000) 1.(000) 33 Set Gateway IP Address (N) ? N Netmask: Number of Bits for Host Part (0=default) (0) 0 Change telnet config password (N) ? N	_	
Change Setup: O Server 1 Channel 1 3 E-mail 5 Expert 6 Security 7 Defaults 8 Exit without save 9 Save and exit Your choice ?		•

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

🔤 ฉระหี วัดวร์ห	<u>- 0</u>	×
8 Exit without save 9 Save and exit	Your choice ? O	•
IP Address : (000) 192.(000) Set Gateway IP Address (N) ? Netmask: Number of Bits for H Change telnet config password	168.(000) 1.(000) 33 N Host Part (0=default) (0) 0 H (N) ? N	
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 ? 9	
Parameters stored		
ホストとの接続が切断されまし† C:¥>_	- - •	•

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.

🕈 CPR 4.1 – InstallShield Wizard	
Location to Save Files Where would you like to save your files	17
Please enter the folder where you want exist, it will be created for you. To con	: these files saved,If the folder does not itinue, click Next.
Save files in folder:	
C:¥Program Files¥Lantronix¥CPR¥Insta	
	Change
to second parts	
Masualizi Neiru	< Back Next > Cancel

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.

🙀 Lantronix CPR 4.1.0.2	
Select Installation Folder	
The installer will install Lantronix CPR 4.1.0.2 to the following folder. To install in this folder, click "Next". To install to a different folder, enter it belo <u>Folder:</u>	w or click "Browse".
	<u>D</u> isk Cost
Cancel < Back	Next >

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.

🚸 CPR Manager										
<u>File C</u> om Port <u>D</u> evi	ce <u>T</u> ools <u>H</u> e	lp .								
3 🗐 🔎 🖻										
Com Ports		Com Port List Ge	neral Tests							
Com Ports All Com Ports Com 1 (fnacté Com 3 (fnaccé Com 5 (fnaccé	ssible) ssible) ssible)	Com Port List Ge Com Port Com 1 (Paccess Com 5 (Paccess Com 5 (Paccess)	IP Address	TCP	Com Status	Network Status	2217	BfrW	SvrRec	NoC
Devices IP Address	TCP Port	Device Name	Port Name	HW a	ni Address	ID Product				8
Ready										:

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.

Com Ports	8					
Com'l	Com21	Com41	Com61	Com81	Com101	Com121
Com2	Com22	Com42	Com62	Com82	Com102	Com122
Com3	Com23	Com43	Com63	Com83	Com103	Com123
Com4	Com24	Com44	Com64	Com84	Com104	Com124
Gomb	Com25	Com45	Com65	Com85	Com105	Com125
Com6	Com26	Com46	Com66	Com86	Com106	🔤 Com126
Com7	Com27	Com47	Com67	Com87	Com107	Com127
Com8	Com28	Com48	Com68	Com88	Com108	Com128
Com9	Com29	Com49	Com69	Com89	Com109	Com129
Com10	Com30	Com50	🔲 Com70	Com90	Com110	🔄 Com130
Com11	Com31	Com51	🔽 Com71	Com91	Com111	Com131
Com12	Com32	Com52	🔄 Com72	Com92	Com112	Com132
Com13	Com33	Com53	🔲 Com73	Com93	Com113	Com133
Com14	Com34	Com54	🗌 Com74	Com94	Com114	Com134
Com15	Com35	Com55	🔲 Com75	Com95	Com115	Com135
Com16	Com36	Com56	Com76	Com96	Com116	Com136
Com17	Com37	Com57	🗌 Com77	Com97	Com117	Com137
Com18	Com38	Com58	🗖 Com78	Com98	Com118	🔄 Com138
Com19	Com39	Com59	🗖 Com79	Com99	Com119	Com139
Com20	Com40	Com60	🗌 Com80	Com100	Com120	Com140
<						>
-						
OK	Cance		heck (Range)] 1 📩 te	256	
Select Al	I Select N	on Un	check (Range)] 1 📚 to	256 📚	
	1916	- C				·

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".

	Service Host	'R Transmit Buffer Empty		
Devices IP Address TCP Port Device N	1 192.1681.33 2	TCP Port 14000 Interwall's exclusion Also, some legac unable to connee legac this machine is b port to the Firew, port has already	he Host is on the other side of a 30718, 43282 and 43283 may m on list. You may experience tro y device servers respond on UI ct to a device server, one possi locking this port. Press the 'Ad all. If the button caption reads been added and can be remove Add Rx Port <u>The Firewa</u> ID Product	a router or a remote firewall, weed to be added to the uble opening this com port if DP port 43283. If you are ible cause is the Firewall on dd R+ Port button to add this s 'Remove Rx Port then the ed by pressing this button. Allis turned ON

4,After setting is completed, select "Com Port" >> "Save setting". The following screen will be displayed, click "Yes" button...

Save Se	ttings 🛛 🔣
2	Are you sure you want to save?

Click "Continue" button.

ハードウェ	アのインストール
<u>.</u>	このハードウェア: Lantronix CPR Port を使用するためにインストールしようとしているソフトウェアは、Windows XP との 互換性を検証する Windows ロゴテストに合格していません。 (このテストが重要である理由) インストールを続行した場合、システムの動作が損なわれたり、システム が不安定になるなど、重大な障害を引き起こす要因となる可能性があり ます。今ずぐインストールを中断し、Windows ロゴテストに合格したソフ トウェアが入手可能かどうか、ハードウェア ベンダーに確認されることを、 Microsoft は強くお勧めします。
	続行(C) インストールの停止(S)

The following screen will be displayed. Setting is completed. Please close this application.

🕎 CPR Manager							
<u>File Com Port Device Tools H</u> elp							
1 🦻 🗐 🔎 🖻							
Com Ports	Settings Com 6 Test	5					
⊟ All Com Ports (4)	Com 6	Com 6					
Com 1 (haccessible) - Com 3 (haccessible) - Com 5 (haccessible) - Com 6	Window's Port Nam Window's Device N window's Service n	e: Lantronix CPR Port ame: ¥Device¥CprDevice ame: ∪pr∪rvr	rt (COM6) se6 Com Status: Closed Network Status: Disconnected				
Contraction and Contraction	Reset to Default	Reset to Defaults Cancel Edits					
	Buffer Writes	Buffer Writes (Keep checked for better write Server Reconnect No Net Close			7 Connection Timeout (in seconds)		
	Listen Mode	Listen Mode Normal - port closed after discor			TCP Port	Add To Firewall	
	TCP KeepAlive	TCP KeepAlive 7200000 C KeepA) 1000 C KeepAlive Interval (msec)		
	Tx Empty: CPR Transmit Buffer Empty						
	Service Host 1 192.168	TCP Port 1.33 14000	WARNING! If the Host is on the other side of a router or a remote firewall, then UDP ports 30718, 43282 and 43283 may need to be added to the firewall's exclusion list. You may experience trouble opening this com port if Also, some legacy device servers respond on UDP port 43283. If you are unable to connect to a device server, one possible cause is the Firewall on this machine is blocking this port. Press the 'Add Rx Port' button to add this port to the Firewall. If the button caption reads "Bemove Rx Port' then the				
	3 4 5					ort 43283. If you are cause is the Firewall on a Port' button to add this move Rx Port' then the	
	6 7		port has already t	Add By Port	d can be removed by	pressing this button.	
	8			nau to rolt			
Davianc				_			
IP Address TCP Port /	Device Name	Port Name	HW Address	ID	Product		
			and the designment of	1.000			
							_
Status of Com Port 6 is Closed and Connected	i to 192.168.1.33:14000						;

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		А
1	0	1	1		В
1	1	0	0		С
1	1	0	1		D
1	1	1	0		Е
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.

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.
Т	Pulse is output from the TRG signal.
С	Pulse is output from the CLR signal.
D	Configure port I/O setting.
Р	Set the pulse width of the control signal.
L	Set the presence/absence of latch circuit.
U	Set the output signal.
В	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

$xxxx \cdots CR LF$:	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".

FormatT 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: $\ \mbox{I/O}$ 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 10 μ s, 100 μ s, 1ms, 100ms, 100ms.

When powering on the ZS - 6822, it is set to 10 $\mu s.$

> Format

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

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

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

➢ 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
	D0	1	2	D0	
	D1	3	4	D1	
	D2	5	6	D2	
PORT	D3	7	8	D3	PORT
1	D4	9	10	D4	2
	D5	11	12	D5	
	D6	13	14	D6	
	D7	15	16	D7	
	D0	17	18	D0	
	D1	19	20	D1	
	D2	21	22	D2	
PORT	D3	23	24	D3	PORT
3	D4	25	26	D4	4
	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 \leftarrow External device

 $\text{OUT} \quad : \ \text{ZS-6822} \ \rightarrow \ \text{External device}$

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