ZS-6220 Series USB-PIO Adapter

User's Manual



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1. Outline

ZS-6220 is a unit that communicates parallel signals and USB. You can control the instrument of the BCD output, control connected equipment or collect data, by connecting with a personal computer.



2. Features

- (1) It can be easily measurement control with laptop computer.
- (2) There are 8 ports (8bits/port) for parallel signals, and I/O can be selected by each port.
- (3) It is possible to be selected for data code in 4-bit units by BCD or HEX.
- (4) In addition to data, control lines are prepared and it is possible to synchronize with external equipment.
- (5) I/O and control lines are possible to be selected positive or negative logic.

3. Specifications

3.1. Operating environment

- > PC : IBM PC/AT Compatible machine (USB port required)
- ≻ OS : Microsoft Windows 2000, XP, Vista, 7

3.2.USB

Compliant with USB 1.1 standard

3.3. Parallel port

Amount of ports	:	8 (8 bit/port)
I/O level	:	Fan-in = 1
		Fan-out = 10

Pull-up resistor $10 \mathrm{K}\Omega,$ It is possible to be set Pull-down



3.4. Product specification

Model	ZS-6220P	ZS-6220T	ZS-6220H
Features	Printed circuit board type	Small case built-in type	Small case built-in type
Data connector	50-core flat cable	50-core flat cable	Amphenol 50P
Power supply	DC4.75V to 5.25V 400mA	DC4.75V to 5.25V 400mA	AC85V to 264V 50Hz/60Hz
Environment	Temp 0°C to 50°C Humidity 85% or less	Temp 0°C to 50°C Humidity 85% or less	Temp 0°C to 50°C Humidity 85%or less
Storage Temp	-20°C to 80°C	-20°C to 80°C	–20°C to 80°C
Size	150 × 100 × 30H	130(W) × 32(H) × 160	215(W) × 49(H) × 252
Accessary	Data connector x2 HIF3BB-50D-2.54R	Data connector x2 HIF3BB-50D-2.54R	Data connector x2 57-30500
	CD x1 (Device driver、User's manual)	CD x1 (Device driver, User's manual)	CD x1 (Device driver, User's manual)
	DC power cable		AC power cable

3.5. Appearance

ZS-6220P



ZS-6220T



ZS-6220H



4. Install

4.1. Windows Vista / 7

In order to use this product in an environment where Windows Vista / 7 is installed, hardware and device drivers must be installed at first by the following procedure.

- 1 Connect this product and computer with a USB cable.
- 2 $% \label{eq:2.1}$ Turn on the PC and start Windows.
- \bigcirc Turn on the power to this unit.
- ④ Install the device driver
- 5 Finish the install

Descriptions of 1 to 3 are omitted here.

Install the device driver in 4 is explained below.

Depending on the composition of the personal computer, the following screen may have some differences in the display of text, but basically it is similar.

The following screen will be displayed when connecting this unit to the computer at first time.



Click "Search and install driver software".

Please insert the attached CD when the following display appears.

When the PC is connected to the internet, the subsequent screens are not displayed and the driver may be installed automatically.



"It can not verify the publisher of the driver software" appears, there is no particular problem. Click "Install this driver software".



Install the driver software.

🕞 🧕 新しいハードウェアの検出 - USB <-> Serial Cable	
ドライバ ソフトウェアをインストールしています	

When the installation of the device driver is completed, the following screen will be displayed. Please click "Close" button.



The following screen will be displayed.

X → 新しいハードウェアが見つかりました USB Serial Port のドライバ ソフトウェアをインストールする必要がありま す ドライバ ソフトウェアを検索してインストールします (推奨)(L) このデバイスのドライバ ソフトウェアをインストールする手順をご案 内します。 → 後で再確認します(A) 次回デバイスをプラグインするときまたはデバイスにログオンすると きに、再度確認メッセージが表示されます。 ⑦ このデバイスについて再確認は不要です(D) このデバイスは、ドライバ ソフトウェアをインストールするまでは動 作しません。 キャンセル

Click "Search and install driver software".

Click "Next" button.



Since there is no problem, click "Install this driver software".



Install the driver software.

🌀 🧕 新しいハードウェアの検出 - USB Serial Port	×
ドライバ ソフトウェアをインストールしています	

Installation of the driver is completed, please click "Close" button,



4.2. Windows XP / 2000

In order to use this product in an environment where Windows XP / 2000 is installed, hardware and device drivers must be installed at first by the following procedure.

- ① Connect this product and computer with a USB cable.
- 2 Turn on the PC and start Windows.
- $\ensuremath{\textcircled{}}$ 3 Turn on the power to this unit.
- 4 Install the device driver
- 5 Finish the install

Descriptions of ① to ③ are omitted here.

Install the device driver in 4 is explained below.

Depending on the composition of the personal computer, the following screen may have some differences in the display of text, but basically it is similar.

The following screen will be displayed when connecting this unit to the computer at first time.



Select "No, it will not connect at this time (\underline{T}) " and click the "Next" button.

Select "Install from list or specific location" and click the "NEXT" button.

新しいハードウェアの検出ウィザード		
	このウィザードでは、)次のハードウェアに必要なソフトウェアをインストールします: USB Serial Converter メードウェアに付属のインストール CD またはフロッピー ディ スクがある場合は、挿入してください。	
	インストール方法を選んでください。 〇 ソフトウェアを自動的にインストールする (推奨)の ① 一覧または特定の場所からインストールする (詳細) (S) 続行するには、D次へ] をクリックしてください。	
	< 戻る(B) (次へ(N)) キャンセル	

Insert the CD into the computer and select "Search the driver in the following places". Check "Include the following location", select "drivers¥Windows" in the Cd drive from the reference, and click the "NEXT" button.

新しいハードウェアの検出ウィザード
検索とインストールのオブションを選んでください。
 ○ 次の場所で最適のドライバを検索する(S) 下のチェック ボックスを使って、リムーバブル メディアやローカル パスから検索できます。検索された最適のドライバがインストールされます。 □ リムーバブル メディア (フロッピー、CD-ROM など)を検索(M) ☑)次の場所を含める(Q):
D¥drivers¥Windows ● 検索しないで、インストールするドライバを選択する(D) 一覧からドライバを選択するには、このオブションを選びます。選択されたドライバは、ハードウェアに最適のもの とは限りません。
< 戻る(B) (次へ(N)> キャンセル

In case of Windows XP, the following screen is displayed. "It has not passed Windows logo test to verify compatibility with Windows XP", since there is no particular problem. Please click "Continue" button.



Install the software.

新しいハードウェアの検出ウィザード	
ソフトウェアをインストールしています。お待ちください	
USB Serial Converter	
>	
システムの復元ポイントを設定し、将来システムの復元が必要となる場合にそなえて古いファイルのバックアップを作成しています。	
< 戻る(B) (次へ(N) >)	キャンセル

The following screen will be displayed when installation of the device driver is completed. Click "Finish" button.



The following screen will be displayed.

新しいハードウェアの検出ウィザード		
	新しいハードウェアの検索ウィザードの開始	
	お使いのコンピュータ、ハードウェアのインストール CD または Windows Update の Web サイトを検索して(ユーザーの了解のもとに)現在のソフトウ ェアおよび更新されたソフトウェアを検索します。 <u>プライバシー ポリシーを表示します。</u>	
	ソフトウェア検索のため、Windows Update に接続しますか?	
	 ○はい、今回のみ接続します(½) ○はい、今すぐおよびデバイスの接続時には毎回接続します(E) ③(1)いえ、今回は接続しません(T) 	
	続行するには、[次へ]をクリックしてください。	
く 戻る(四) (次へ(1)) キャンセル		

Select "No, it will not connect at this time (\underline{T}) " and click the "NEXT" button.

Select "Install from list or specific location" and click the "NEXT" button.



Refer to the same place as before and click "NEXT" button.

新しいハードウェアの検出ウィザード
検索とインストールのオブションを選んでください。
◎)の場所で最適のドライバを検索する(5) 下のチェックボックスを使って、リムーバブルメディアやローカルパスから検索できます。検索された最適のドラ イバがインストールされます。 □リムーバブルメディア (フロッピー、CD-ROM など)を検索(M) ☑」の場所を含める(0):
D:¥drivers¥Windows 参照(R) ● 検索しないで、インストールするドライバを選択する(D) 一覧からドライバを選択するには、このオブションを選びます。選択されたドライバは、ハードウェアに最適のもの とは限りません。
〈戻る(13) 「次へ(11) キャンセル

Since there is no problem, 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: USB Serial 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。 <u>このテストが重要である理由</u>) 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(2) インストールの停止(2)

Install the software.

新しいハードウェアの検出ウィザード	
ソフトウェアをインストールしています。お待ちください	
USB Serial Port	
ftcserco.dll コピー先: C:¥WINDOWS¥system32	
	(B) (次へ(N)) キャッセル

The following screen will be displayed when the installation of the device driver is completed



Installation of the device driver is completed. Click "Finish" button.

After that, it may be asked to restart depending on the configuration of the PC, please restart according to the instructions on the screen.

Even if you connect to the computer from next time, these screens will not be displayed.

5. operation

5.1. setting

(1) DIP switch



(2) Jumper setting

Power supply switching jumper (JP1)

Select whether to turn on the power supply from USB or external supply. EXT side: external power supply, USB side: USB supply

5.2. Transfer data method

 $(1) \ \ \, {\rm Data\ code\ table}$

The data transfer method is executed by ASCII code, and one character is converted to 4-bit parallel code.

	4-bit p	arallel		USB	data
8	4	2	1	HEX	BCD
0	0	0	0	0	0
0	0	0	1	1	1
0	0	1	0	2	2
0	0	1	1	3	3
0	1	0	0	4	4
0	1	0	1	5	5
0	1	1	0	6	6
0	1	1	1	7	7
1	0	0	0	8	8
1	0	0	1	9	9
1	0	1	0	Α	*
1	0	1	1	В	/
1	1	0	0	С	
1	1	0	1	D	E
1	1	1	0	E	-
1	1	1	1	F	+

(2) The data sent from the PC is transferred sequentially from the small number of the port set for output. Port numbers set for input are sequentially taken from small numbers and sent to the PC. The data of each port is set or taken in 4-bit.

Order to send to PC	Port data		
1	Port_1 D8 to D5		
2	Port_1 D4 to D1		
3	Port_2 D8 to D5		
4	Port_2 D4 to D1		
5	Port_3 D8 to D5		
6	Port_3 D4 to D1		

Order to	Port data
ZS-6220	
1	Port_4 D8 to D5
2	Port_4 D4 to D1
3	Port_5 D8 to D5
4	Port_5 D4 to D1
5	Port_6 D8 to D5
6	Port_6 D4 to D1
7	Port_7 D8 to D5
8	Port_7 D4 to D1
9	Port_8 D8 to D5
10	Port_8 D4 to D1



▶ e.g) When ports 1,2 and 3 are input, and ports 4,5,6,7, and 8 are set to output.

5.3. Control signal

Control signal is prepared that it can be synchronized with the connected device.

Signal	Signal		Description
Name	Directon	Туре	
UAR	OUT	L	The start pulse can be received.
EAR	IN	L	The external device is possible to be receive data.
STB	OUT	Р	The adapter has received all data from the PC and has been
			all the parallel outputs. This signal can be for Latch-Clock etc,
			for external device if it is necessary.
			Output 100µs pulse
STT	IN	Р	Data ready signal from external device such as end of measurement.
			Input a signal with a pulse width 30µs or more.
TRG	OUT	Р	Output trigger pulse signal of $100\mu s$ to external device by trigger
			function.
CLR	OUT	Р	It can be used for resetting external device with 100µs clear pulse
			signal output by clear function.

Note) L is a level signal, P is a pulse signal.

Note) UAR, EAR, STB can be set positive/negative logic by using DIP switch.

5.4. I/O operation

(1) It outputs data from PC to parallel port. After receiving the data sent from the PC, wait for the EAR input to become active.

Data is set for each 4 bits at the output port if it is active. After setting the data to the output port, the STB pulse is output.

Note) In case of receiving more than amount of data that is set on the output port, extra data will be discarded.

In case of receiving less than amount of data that is set on the output port, the data sent last time remains in the empty space.

Be sure to set the positive/negative logic of EAR to positive logic when not using the EAR signal.



- (2) The data that is input from parallel port, send to the PC.
- Synchronous input

It activates the UAR output and waits for the STRT pulse. It takes 4 bits of data from the input port and transmits it to the PC.



> Asynchronous input

When the "S" command comes from the PC, it captures data from the input port and transmits it to the PC without worrying about the state of the signal like the synchronous input.

6. API function

6.1. List of functions

Function name	Description
ZupOpen	Open the USB port and initialize
ZupClose	Close the USB port and execute driver termination processing.
ZupRead	Data is read from all input ports.
ZupWrite	Data is written to the output port.
ZupTrigger	Output the pulse from the TRG signal.
ZupClear	Output the pulse from the CLR signal.

6.2. Description of functions

- 6.2.1. ZupOpen
 - Function

Open the USB port and initialize.

- Format
 - ➢ Visual C/C++

long Ret, InByte, OutByte, TimeOut;

char Serial[8];

Ret = ZupOpen(Serial, InByte, OutByte, TimeOut);

Visual Basic

Dim Ret As Long, InByte As Long, OutByte As Long Dim TimeOut As Long Dim Serial As String

Ret = ZupOpen(Serial, InByte, OutByte, TimeOut)

• Argument

Serial	:	K-No.(K-xxxxxx) of ZS-6220
InByte	:	Input byte number 1 to 8byte
OutByte	:	Output byte number 1 to 8byte

TimeOut : Timeout (ms)

• Return value

•••••		-		
Ret	:	End	:	0
		Disconnect to device	:	2
		Open error	:	3
		Fault	:	Other numbers the above

• Setting example

➢ Visual C/C++

long Ret, InByte, OutByte, TimeOut;

char Serial[8];

strcpy(Serial, "K-xxxxxx");

InByte=4;

- OutByte=4;
- TimeOut=1000;
- Ret = ZupOpen(Serial, InByte, OutByte, TimeOut);

Visual Basic

Dim Ret As Long Dim Serial As String Serial = "K-xxxxx" InByte=4 OutByte=4 TimeOut=1000 Ret = ZupOpen(Serial, InByte, OutByte, TimeOut)

6.2.2. ZupClose

• Function

Close the USB port and execute driver termination processing.

• Format

➢ Visual C/C++

long Ret;

Ret = ZupClose();

Visual Basic

Dim Ret As Long

Ret = ZupClose()

• Argument

None

- Return value
 - Ret : End : 0
 - Can not close : other than 0
- Setting example
 - ➢ Visual C/C++

long Ret;

Ret = ZupClose();

Visual Basic

Dim Ret As Long Ret = ZupClose()

6.2.3. ZupRead

- Function
 - Data is read from all input ports.
- Format
 - ≻ Visual C/C++
 - long Ret, Sync; char Buf[20]; Ret = ZupRead(Buf, Sync);

Visual Basic

- Dim Ret As Long, Sync As Long
- Dim Buf As String * 20
- Ret = ZupRead (Buf, Sync)

• Argument

Buf	:	Receive buffer		
Sync	:	Asynchronous input	:	0

Synchronous input : 1

• Return value Ret :

: End	: 0
Disconnect to device	: 2
Time-out	: 18
Fault	: Other numbers the above

• Setting example

- ➤ Visual C/C++
 - long Ret;
 - char Buf[20];

Ret = ZupRead (Buf);

Visual Basic

Dim Ret As Long Dim Buf As String * 20 Ret = ZupRead (Buf)

6.2.4. ZupWrite

- Function Output data to output port.
 Format
- Format
 - ➢ Visual C/C++
 - long Ret;
 - char Buf[20];
 - Ret = ZupWrite(Buf);
 - Visual Basic
 - Dim Ret As Integer
 - Dim Buf As String * 20
 - Ret = ZupWrite (Buf)
- Argument
 - Buf : Transmit buffer

• Return value

۲

- Ret : End : 0 Disconnect to device : 2 Fault : Other numbers the above Setting example
- Visual C/C++
 - long Ret;
 - char Buf[20];
 - Strcpy(Buf, "ABC"); // Store the data in transmit buffer
 - Ret = ZupWrite (Buf);

Visual Basic

Dim Ret As Integer Dim Buf As String * 20 Buf = "ABC" 'Store the data in transmit buffer Ret = ZupWrite (Buf)

6.2.5. ZupTrigger

•	Function			
	Output	the pulse to TRG signal		
•	Format			
	> Visua	al C/C++		
		long Ret;		
		Ret = ZupTrigger();		
	> Visua	al Basic		
		Dim Ret As Integer		
		Ret = ZupTrigger ()		
•	Argumen	t		
	None			
•	Return va	alue		
	Ret	: End	:	0
		Disconnect to device	:	2
		Fault	:	Other numbers the above
•	Setting e	xample		
	> Visua	al C/C++		
		long Ret;		
		Ret = ZupTrigger ();		
	> Visua	al Basic		
		Dim Ret As Integer		
		Ret = ZupTrigger ()		

6.2.6. ZupClear

•]	Function			
	Output	the pulse to CLR signal		
•]	Format			
	Visua	1 C/C++		
		long Ret;		
		Ret = ZupClear();		
	Visua	l Basic		
		Dim Ret As Integer		
		Ret = ZupClear ()		
• 4	Argumen	t		
	None			
•]	Return va	lue		
	Ret	: End	:	0
		Disconnect to device	:	2
		Fault	:	Other numbers the above
• \$	Setting ex	ample		
2	Visua	1 C/C++		
		long Ret;		
		Ret = ZupClear ();		
	Visua	l Basic		
		Dim Ret As Integer		
		Ret = ZupClear ()		

7. Attached software

7.1. Contents

Configuration is as follows.¥(Root directory): Device driver file(Sys, Inf)¥Library: Library for Visual Basic, Visual C/C++¥Sample: Sample program for Visual Basic, Visual C/C++

7.2. How to use the library (Visual C/C++)

Select "Add to Project" and then "File" from the Visual C/C++ "project" menu. In the file selection dialog box, select "Zs6220.H" from "VC++" in the library folder of the product attached CD.



It will look like this in the workspace window.

<u> </u>	
P-ウスペース 'test': 1 フロジェクト E test ファイル Source Files Header Files Resource.h StdAfx.h E testh E testDlg.h ZS6220.H Resource Files ReadMe.txt ME MARKAT関係	
EgClassView 🙀 ResourceView 📄 File	eView 「

Select "Add to Project" and then "File" from the Visual C/C++ "project" menu.

In the file selection dialog box, change "file type" to "library file(*Lib)" and select "ZS6220.lib" from "VC" in the "Library" folder of the product attached CD.

ⅈℿシ՟ェクトへファイル	を追加		?
ファイルの場所型:	000 VC++	- E C	• 📰-
E ZS6220.11b			
ファイル名(N):			OK
ファイルの種類(①):	ライフ [*] ラリファイル(lib)	<u> </u>	キャンセル
ファイルはフォルダータ	(トルカジ 'test ファイル' のプロジェクト	'test' 内へ挿入されます。	

It will look like this in the workspace window.



The preparation is complete.

7.3. How to use the library (Visual Basic)

Select "Add standard module" from the Visual Basic "Project menu".

In the file selection dialog box, select the "Existing Files" tab, select "ZS6220.bas" from "VB" in the library folder of the product attached CD.

標準モシュールの追加	l		? 🔀
新規作成 既存の7 ファイルの場所印:	р(Ilu [🗁 VB	- E e	*
K ZS6220.bas			<u>()</u>
ファイル名(N):	ZS6220.bas		開(())
ファイルの種類(工):	標準モジュール (*.bas)	_	キャンセル
	* ボッウスを表示しない(U)		

It will look like this in the workspace window.

ንግንኝቷንት - Project1 🛛 🛛 🛛	3
 ■ Project1 (Project1) ■ つ フォーム ■ ● ● ● 標準モジュール ■ ● ● ● 標準モジュール 	

The preparation is complete.

8. Connector

8.1. Connector table of ZS-6220P, ZS-6220T

Data connector $\ :$ CN5 side HIF3BB-50PA2.54WB

: CN6 side HIF3BB-50PA2.54DS

DATA1 (Connector CN5)							DATA2 (Connector CN6)					
I/O	SIGNAL	P	[N	SIGNAL	I/O		I/O	SIGNAL	P	IN	SIGNAL	I/O
	D1	1	2	D1				D1	1	2	D1	
	D2	3	4	D2				D2	3	4	D2	
	D3	5	6	D3				D3	5	6	D3	
PORT	D4	7	8	D4	PORT		PORT	D4	7	8	D4	PORT
1	D5	9	10	D5	2		5	D5	9	10	D5	6
	D6	11	12	D6				D6	11	12	D6	
	D7	13	14	D7				D7	13	14	D7	
	D8	15	16	D8				D8	15	16	D8	
	D1	17	18	D1				D1	17	18	D1	
	D2	19	20	D2				D2	19	20	D2	
	D3	21	22	D3				D3	21	22	D3	
PORT	D4	23	24	D4	PORT		PORT	D4	23	24	D4	PORT
3	D5	25	26	D5	4	4	\bigcirc	D5	25	26	D5	8
	D6	27	28	D6				D6	27	28	D6	
	D7	29	30	D7				D7	29	30	D7	
	D8	31	32	D8				D8	31	32	D8	
	(NC)	33	34	+5V	OUT			(NC)	33	34	+5V	OUT
	(NC)	35	36	+5V	OUT			(NC)	35	36	+5V	OUT
OUT	UAR	37	38	+5V	OUT		OUT	UAR	37	38	+5V	OUT
IN	EAR	39	40	+5V	OUT		IN	EAR	39	40	+5V	OUT
OUT	STB	41	42	GND			OUT	STB	41	42	GND	
IN	STT	43	44	GND			IN	STT	43	44	GND	
OUT	TRG	45	46	GND			OUT	TRG	45	46	GND	
OUT	CLR	47	48	GND			OUT	CLR	47	48	GND	
	(NC)	49	50	GND				(NC)	49	50	GND	

Note) I/O indicates the direction between the signals of the ZS-6220 adapter and the parallel signal I/O device.

IN	:	ZS-6220	\leftarrow	external device
OTT		79-0990		

- OUT : $ZS-6220 \rightarrow$ external device
- PORT : Bidirectional data bus

Power connector (CN1) : IL-4P-S3EN2-1

PIN	SIGNAL
1	+5V Power supply switching
2	+5V External power supply
3	+5V USB power output
4	GND

8.2. Connector table of ZS-6220H

Data connector 57-40500

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DATA1							DATA2					
I/O	SIGNAL	P	[N	SIGNAL	I/O		I/O SIGNAL		P	[N	SIGNAL	I/O
	D1	1	26	D1				D1	1	26	D1	
	D2	2	27	D2				D2	2	27	D2	
	D3	3	28	D3				D3	3	28	D3	
PORT	D4	4	29	D4	PORT		PORT	D4	4	29	D4	PORT
1	D5	5	30	D5	2	5	5	D5	5	30	D5	6
	D6	6	31	D6				D6	6	31	D6	
	D7	7	32	D7				D7	7	32	D7	
	D8	8	33	D8				D8	8	33	D8	
	D1	9	34	D1				D1	9	34	D1	
	D2	10	35	D2				D2	10	35	D2	
	D3	11	36	D3				D3	11	36	D3	
PORT	D4	12	37	D4	PORT		PORT	D4	12	37	D4	PORT
3	D5	13	38	D5	4		$\overline{\mathcal{O}}$	D5	13	38	D5	8
	D6	14	39	D6				D6	14	39	D6	
	D7	15	40	D7				D7	15	40	D7	
	D8	16	41	D8				D8	16	41	D8	
	(NC)	17	42	+5V	OUT			(NC)	17	42	+5V	OUT
	(NC)	18	43	+5V	OUT			(NC)	18	43	+5V	OUT
OUT	UAR	19	44	+5V	OUT		OUT	UAR	19	44	+5V	OUT
IN	EAR	20	45	+5V	OUT		IN	EAR	20	45	+5V	OUT
OUT	STB	21	46	GND			OUT	STB	21	46	GND	
IN	STT	22	47	GND			IN	STT	22	47	GND	
OUT	TRG	23	48	GND			OUT	TRG	23	48	GND	
OUT	CLR	24	49	GND			OUT	CLR	24	49	GND	
	(NC)	25	50	GND				(NC)	25	50	GND	

- Note) I/O indicates the direction between the signals of the ZS-6220 adapter and the parallel signal I/O device.
 - IN : ZS-6220 \leftarrow external device
 - OUT : ZS-6220 \rightarrow external device
 - PORT : Bidirectional data bus

9. Option

The following expansion boards are available as an option for the ZS-6220 series.

ZS-7220P : 32-bit isolator input board ZS-7221P : 32-bit isolator output board ZS-7211P : 24-point relay output board

10. 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