

User's Manual

32-bit input isolator board

Z S - 7 2 2 0 P

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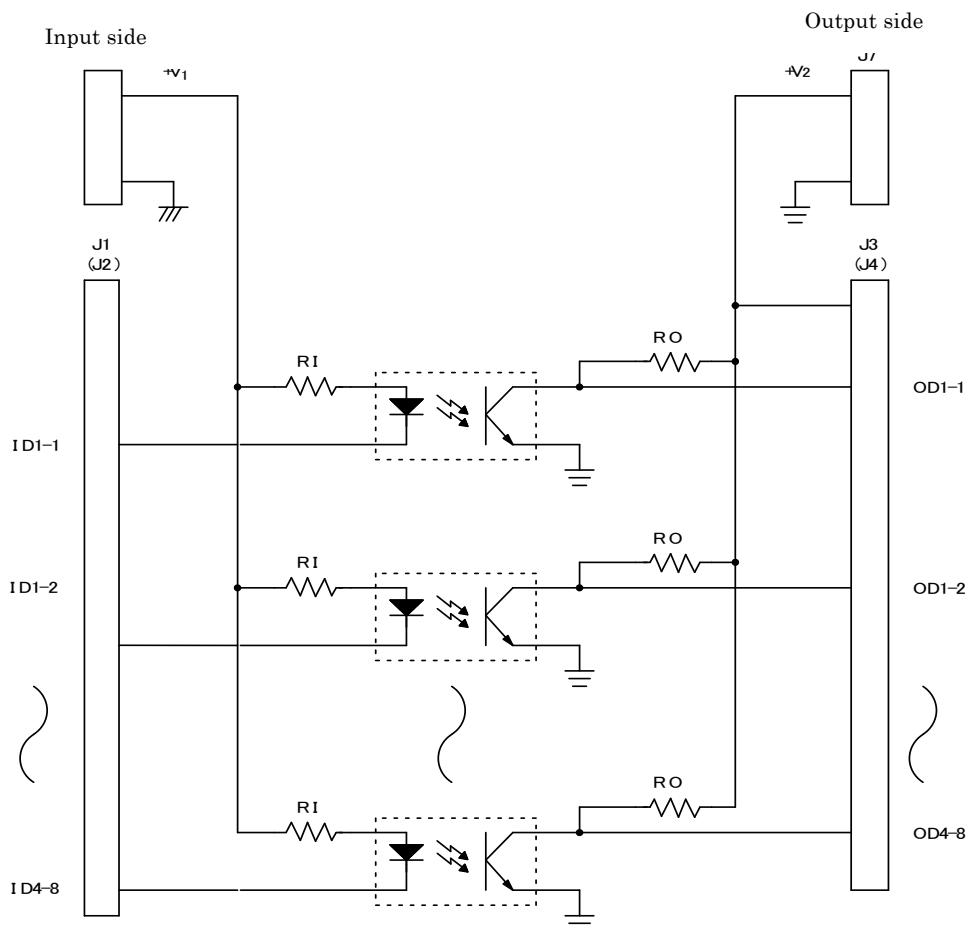
32-bit isolator board

1. Outline

ZS-67220P electrically insulates the input side and the output side of 32-bit parallel signal using an isolator.

Feature

- (1) It is prepared products corresponding to each voltage.
- (2) Amphenol 50-pin type and flat cable 50-pin type are available on the input side connector.
- (3) This product can be easily connected with the GP-IB adapter ZS-6120BP etc, it is possible to isolate the control signal with the computer and create a noise-resistant system.



J1: Input side 50-pin connector 57LE-40500

J2: Input side 50-pin connector FAP-5001-1204

J3: Output side 50-pin connector FAP-5001-1204

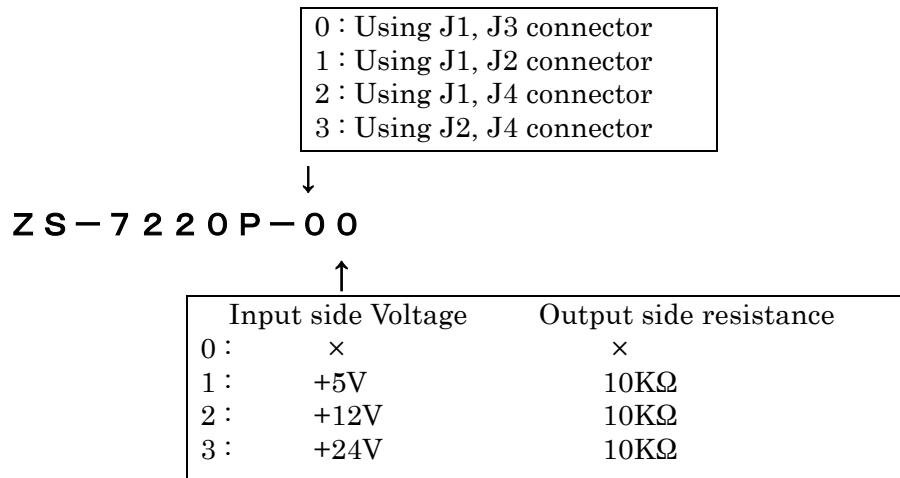
J4: Output side 50-pin connector 57LE-40500

J6: Input side power connector 273-04A

J7: Output side connector 5273-04A

2. Product model

ZS-7220P is specified the power supply voltage, shape of connector, presence/absence of resistance mounting with the last two letters.



Note) "x" is the user installed resistance. Refer to Section 5.2 for the value of RI.

Note) When the voltage of the input side is specified (+5V, +12V, +24V) attached the resistance value accordingly.

Note) Be sure to use the output side 10KΩresistor mounting model with the output side voltage 24V or less.

3. Specification

3. 1 Input side

(1) Input method Current-driven input with photocoupler isolation.

(2) Input resistance It depends on the input side applied voltage.

+5V model (ZS-7220P-01) 330Ω

+12V model (ZS-7220P-02) 1.2KΩ

+24V model (ZS-7220P-03) 2.2KΩ

(3) Drive current 10mA (MAX 50mA)

(4) Input voltage DC5V, 12V, 24V

Note) When Mounting resistor by the user, it is arbitrary under DC100V. in this case, please do so that the current to LED is in the range of 10 to 20mA.

3. 2 Output side

(1) Output method Open collector output or 10KΩ resistance pull-up.

(2) Rated current MAX DC35V

(3) Output rated current Sink current 3.2mA or less

3. 3 Transfer characteristic

(1) Insulation resistance 100MΩ or more, DC500V

(2) Response time 1ms or less

(3) Current transfer ratio Minimum 50% (IF = 5 mA, VCE = 5 V)

(4) Collector saturation voltage 0.4 V or less, (IF = 10 (mA), IC = 5 (mA))

3. 4 Accessory

(1) I/O signal connector

Model	J1	J2	J3	J4
ZS-7220P-0X	57-30500	-	FAS-5001-2101-OBF	-
ZS-7220P-1X	-	FAS-5001-2101-OBF	FAS-5001-2101-OBF	-
ZS-7220P-2X	57-30500	-	-	57-30500
ZS-7220P-3X	-	FAS-5001-1201-OBF	-	57-30500

(2) Power connector 5233-04

J6 Cable length 60 cm + V 1 (+ 5 V) Lead wire color Brown

0 V lead wire color black

J7 cable length 60 cm + V 2 (+ 24 V) lead color red

0 V lead wire color black

3. 5 Others

(1)Power supply Please prepare the power supply on both input and output side on the user side. However, when connecting with ZS-6120BP at the output side connector J3, supply power +5V from ZS-6120BP via the connected connector.

(2)Consumption current input side, 350mA

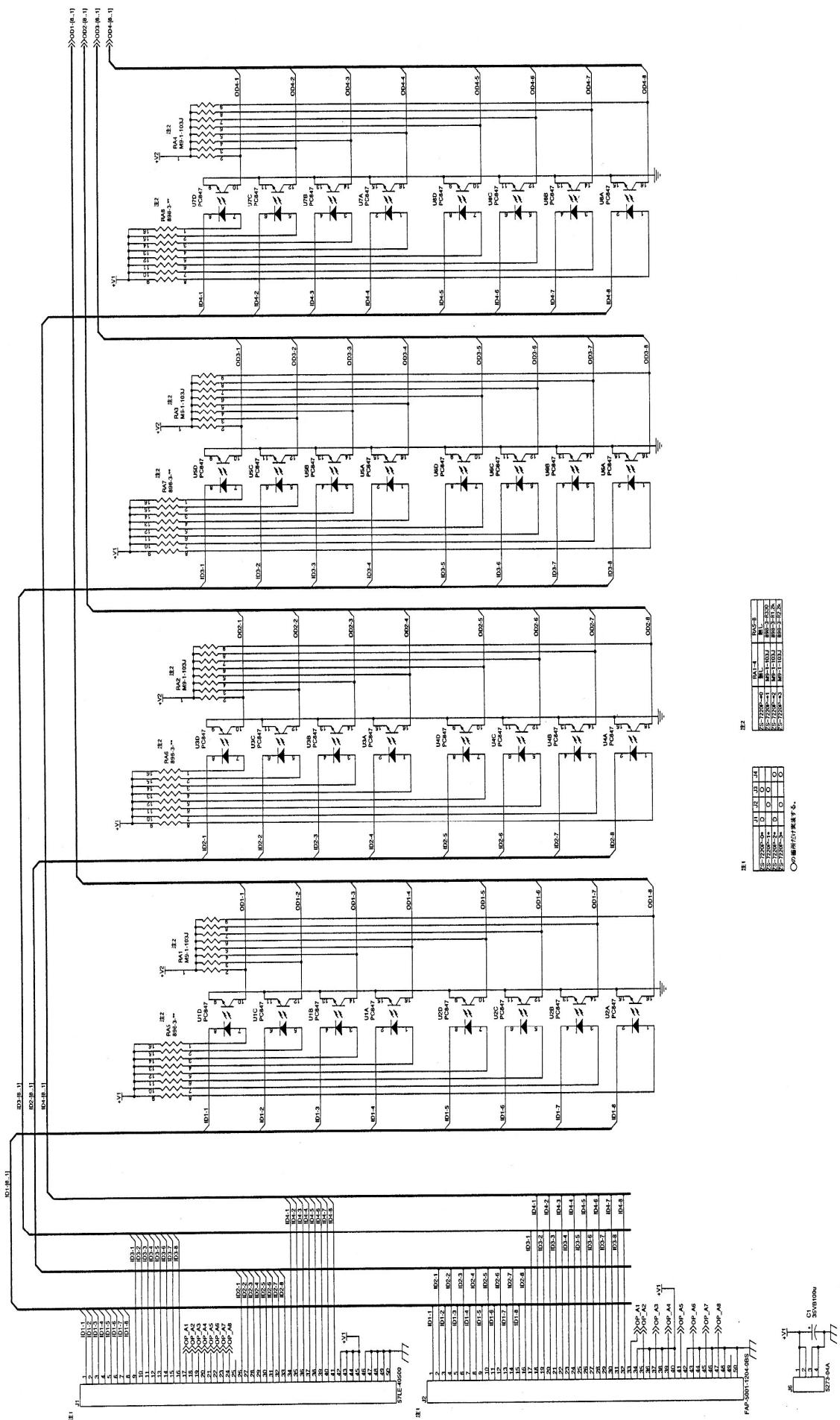
(3)Size 150mm×100mm×32mm(H)

Mounting dimension 140 mm × 90 mm pitch, 4 - φ 3.5 hole

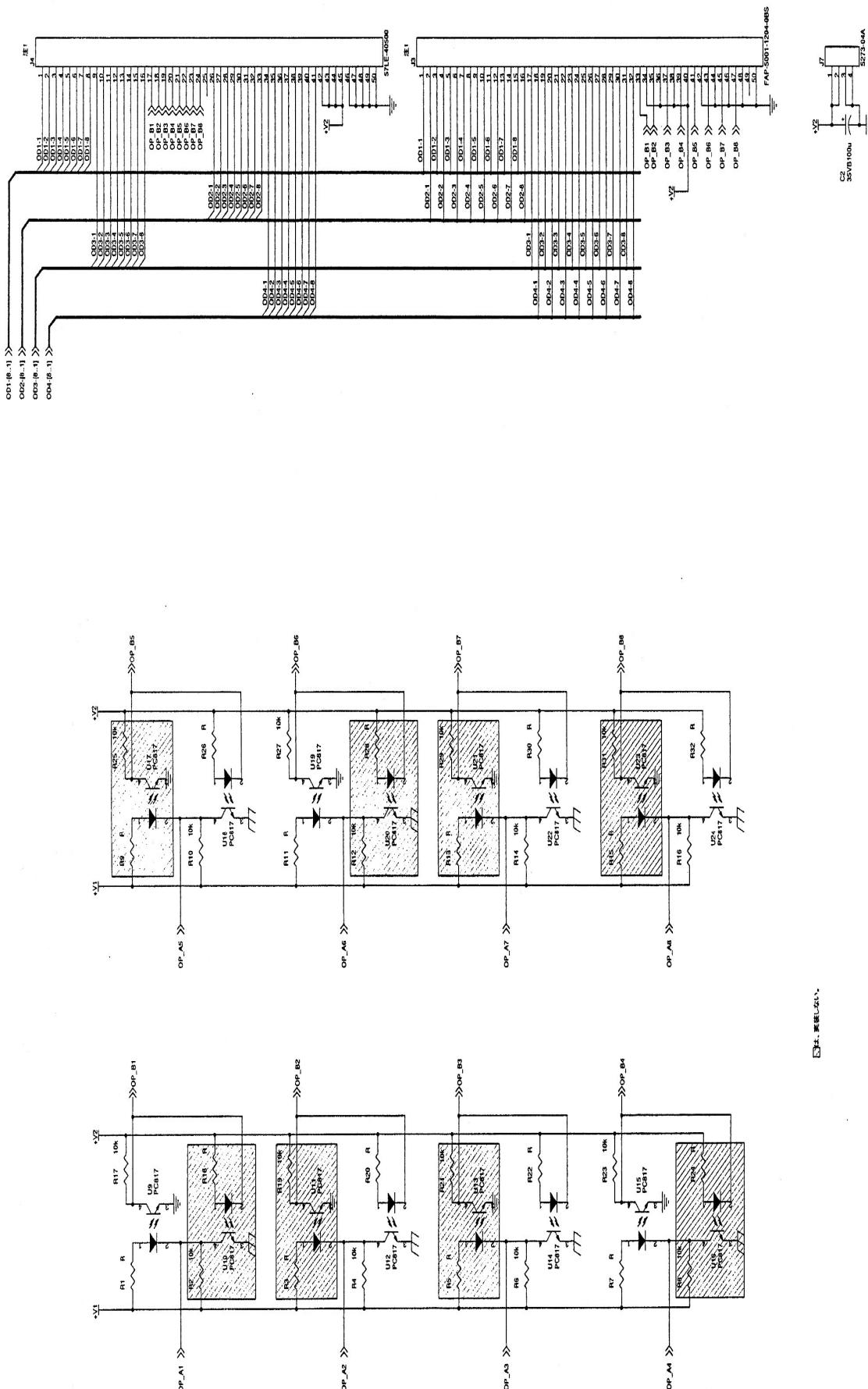
(4)operation condition Temperature 0 to 40 ° C

Humidity 20 to 90% (non-condensing)

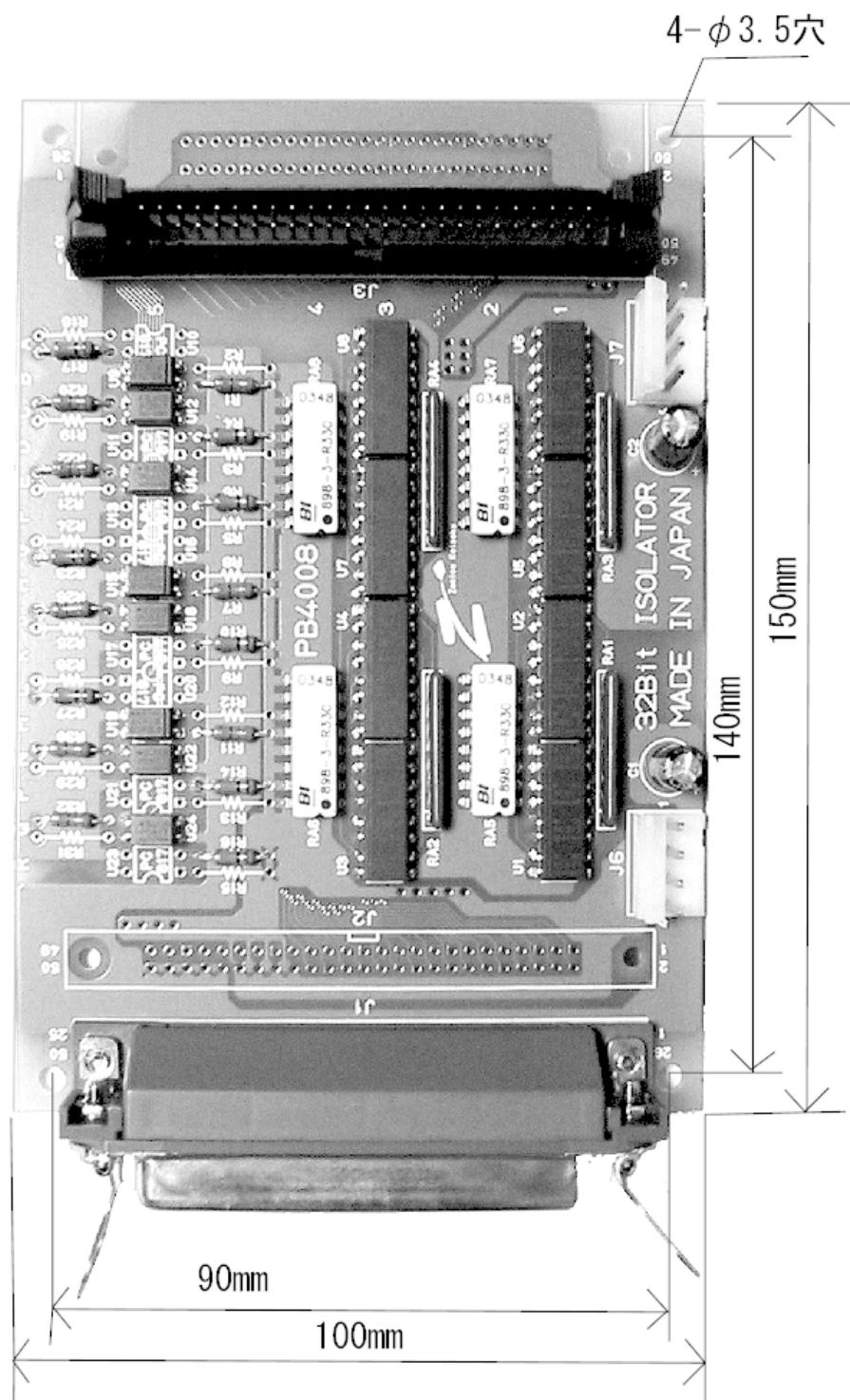
3. 6 Circuit-1



3. 6 Circuit-2



3. 7 Appearance



ZS-7220P-01

4. Connector

(1) J1: Input side connector, applies ZS-7220P-0x and -2x.

J1 PIN ASSIGN

		Pin No.			
IN	ID1-D1	1	26	ID2-D1	IN
IN	ID1-D2	2	27	ID2-D2	IN
IN	ID1-D3	3	28	ID2-D3	IN
IN	ID1-D4	4	29	ID2-D4	IN
IN	ID1-D5	5	30	ID2-D5	IN
IN	ID1-D6	6	31	ID2-D6	IN
IN	ID1-D7	7	32	ID2-D7	IN
IN	ID1-D8	8	33	ID2-D8	IN
IN	ID3-D1	9	34	ID4-D1	IN
IN	ID3-D2	10	35	ID4-D2	IN
IN	ID3-D3	11	36	ID4-D3	IN
IN	ID3-D4	12	37	ID4-D4	IN
IN	ID3-D5	13	38	ID4-D5	IN
IN	ID3-D6	14	39	ID4-D6	IN
IN	ID3-D7	15	40	ID4-D7	IN
IN	ID3-D8	16	41	ID4-D8	IN
IN	Option	17	42	Input side power (V1)	
OUT	Option	18	43	Input side power (V1)	
OUT	Option	19	44	Input side power (V1)	
IN	Option	20	45	Input side power (V1)	
OUT	Option	21	46	GND	
IN	Option	22	47	GND	
OUT	Option	23	48	GND	
OUT	Option	24	49	GND	
	Open	25	50	GND	

Connector: 57LE-40500

Applicable connector: 57-30500

(2) J2: input side connector, applies ZS-7220P-1x and -3x

J2 PIN ASSIGN

		Pin No.			
IN	ID1-D1	1	2	ID2-D1	IN
IN	ID1-D2	3	4	ID2-D2	IN
IN	ID1-D3	5	6	ID2-D3	IN
IN	ID1-D4	7	8	ID2-D4	IN
IN	ID1-D5	9	10	ID2-D5	IN
IN	ID1-D6	11	12	ID2-D6	IN
IN	ID1-D7	13	14	ID2-D7	IN
IN	ID1-D8	15	16	ID2-D8	IN
IN	ID3-D1	17	18	ID4-D1	IN
IN	ID3-D2	19	20	ID4-D2	IN
IN	ID3-D3	21	22	ID4-D3	IN
IN	ID3-D4	23	24	ID4-D4	IN
IN	ID3-D5	25	26	ID4-D5	IN
IN	ID3-D6	27	28	ID4-D6	IN
IN	ID3-D7	29	30	ID4-D7	IN
IN	ID3-D8	31	32	ID4-D8	IN
IN	Option	33	34	Input side power (V1)	
OUT	Option	35	36	Input side power (V1)	
OUT	Option	37	38	Input side power (V1)	
IN	Option	39	40	Input side power (V1)	
OUT	Option	41	42	GND	
IN	Option	43	44	GND	
OUT	Option	45	46	GND	
OUT	Option	47	48	GND	
	Open	49	50	GND	

Connector: FAP-5001-1204

Applicable connector: FAS-5001-2101

(3) J3: Output side connector, applies ZS-7220P-0x and -1x

J3 PIN ASSIGN

		Pin No.			
OUT	OD1-D1	1	2	ID2-D1	OUT
OUT	OD1-D2	3	4	ID2-D2	OUT
OUT	OD1-D3	5	6	ID2-D3	OUT
OUT	OD1-D4	7	8	ID2-D4	OUT
OUT	OD1-D5	9	10	ID2-D5	OUT
OUT	OD1-D6	11	12	ID2-D6	OUT
OUT	OD1-D7	13	14	ID2-D7	OUT
OUT	OD1-D8	15	16	ID2-D8	OUT
OUT	OD3-D1	17	18	ID4-D1	OUT
OUT	OD3-D2	19	20	ID4-D2	OUT
OUT	OD3-D3	21	22	ID4-D3	OUT
OUT	OD3-D4	23	24	ID4-D4	OUT
OUT	OD3-D5	25	26	ID4-D5	OUT
OUT	OD3-D6	27	28	ID4-D6	OUT
OUT	OD3-D7	29	30	ID4-D7	OUT
OUT	OD3-D8	31	32	ID4-D8	OUT
IN	Option	33	34	Input side power (V2)	
OUT	Option	35	36	Input side power (V2)	
OUT	Option	37	38	Input side power (V2)	
OUT	Option	39	40	Input side power (V2)	
IN	Option	41	42	GND	
OUT	Option	43	44	GND	
IN	Option	45	46	GND	
IN	Option	47	48	GND	
	Open	49	50	GND	

Connector: FAP-5001-1204

Applicable connector: FAS-5001-2101

(4) J4: Output side connector, applies ZS-7220P-2x and -3x

J4 PIN ASSIGN

		Pin No.			
OUT	OD1-D1	1	26	ID2-D1	OUT
OUT	OD1-D2	2	27	ID2-D2	OUT
OUT	OD1-D3	3	28	ID2-D3	OUT
OUT	OD1-D4	4	29	ID2-D4	OUT
OUT	OD1-D5	5	30	ID2-D5	OUT
OUT	OD1-D6	6	31	ID2-D6	OUT
OUT	OD1-D7	7	32	ID2-D7	OUT
OUT	OD1-D8	8	33	ID2-D8	OUT
OUT	OD3-D1	9	34	ID4-D1	OUT
OUT	OD3-D2	10	35	ID4-D2	OUT
OUT	OD3-D3	11	36	ID4-D3	OUT
OUT	OD3-D4	12	37	ID4-D4	OUT
OUT	OD3-D5	13	38	ID4-D5	OUT
OUT	OD3-D6	14	39	ID4-D6	OUT
OUT	OD3-D7	15	40	ID4-D7	OUT
OUT	OD3-D8	16	41	ID4-D8	OUT
IN	Option	17	42	Input side power (V2)	
OUT	Option	18	43	Input side power (V2)	
OUT	Option	19	44	Input side power (V2)	
OUT	Option	20	45	Input side power (V2)	
IN	Option	21	46	GND	
OUT	Option	22	47	GND	
IN	Option	23	48	GND	
IN	Option	24	49	GND	
	Open	25	50	GND	

Connector: 57LE-40500 Applicable connector: 57-30500

(5) J6: Input side input power connector

J6 PIN ASSIGN

PIN NO.	
1	Input side power (V1)
2	Input side power (V1)
3	GND
4	GND

Connector: 5723-04A

Applicable connector: 5239-04

(6) J7: Output side input power connector

J7 PIN ASSIGN

PIN NO.	
1	Input side power (V2)
2	Input side power (V2)
3	GND
4	GND

Connector: 5273-04A

Applicable connector: 5239-04

5. Example for usage

5. 1 When driving the input side at TTL level

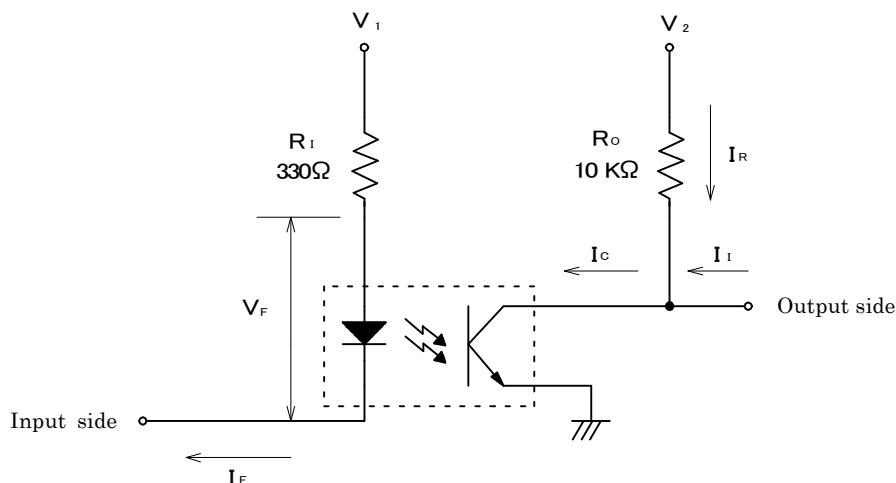
Be sure to use the product of the ZS-7220P-X1 type with input side applied voltage for +5V.

- (1) Current limiting resistance of photocoupler is 330Ω . Please use the element which can be passed current of 12mA or more.

$$I_F = \frac{V_I - V_F}{R_I} = \frac{5(V) - 1.2(V)}{330(\Omega)} = 12(\text{mA})$$

- (2) The collector current IC of the output side transistor of the photocoupler is about 5mA under the condition of current transfer ratio 50%, $I_F=12\text{mA}$, $V_{CE}=0.4\text{V}$ or less. Therefore, the TTL that can be driven on the output side has two standard inputs of TTL and 10 inputs of LSTTL.

$$\begin{aligned} I_C &\leq 0.5 \times I_F \quad I_C \leq I_R + I_I \\ I_I &\geq I_C - I_R = 6(\text{mA}) - \frac{5(\text{V})}{10(\text{K}\Omega)} = 5.5(\text{mA}) \end{aligned}$$



V1: Input side power supply V2: Output side power supply

VF: Voltage drop by diode IF: Drive current of photocoupler

IR: Current flowing to RO IC: Collector current of photocoupler

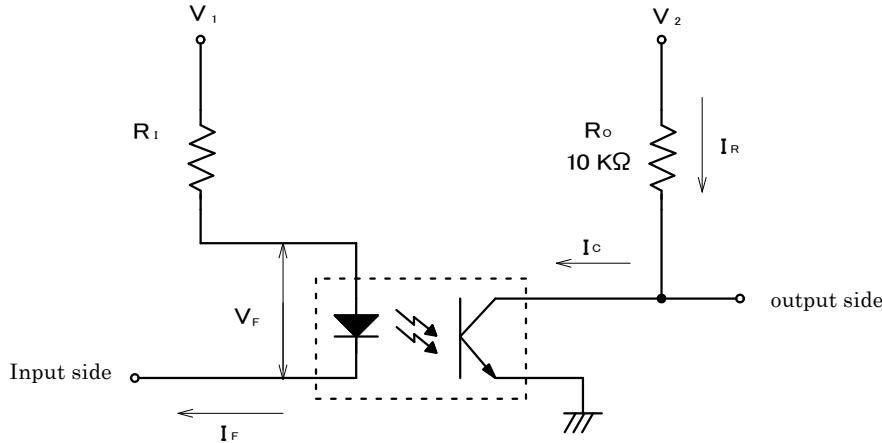
When the input side voltage is other than the standard value, be sure to use

the product of ZS-7220P-X0 type which has no resistance added to the input side. the value of RI is calculated by the following formula below.

For IC=5(mA) and transmission efficiency 50%, IF=10(mA) or more is required.

$$RI = \frac{VI - VF}{IF}$$

$$\therefore \frac{VI - 1.2 (V)}{50 (mA)} \leq RI \leq \frac{VI - 1.2 (V)}{10 (mA)}$$



V1: Input side power supply V2: Output side power supply

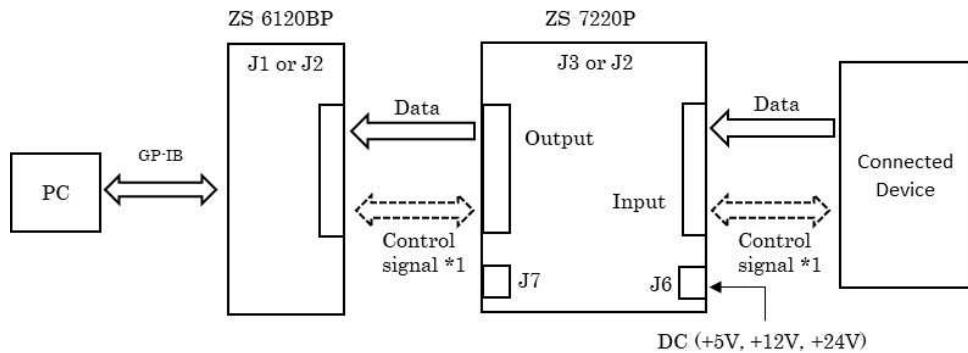
VF: Voltage drop by diode IF: Drive current of photocoupler

5. 2 Connect with ZS-6120BP

Please use products of the type with $10K\Omega$ resistance added to the output side. it is not necessary to supply the output side power supply from J7.

Please connect J1 or J2 of ZS-6120BP to J3 of ZS-6220P with flat cable.

This is example for usage as below.



*1) It is possible to isolate 3bits of control signal input and 5bits of output.

Please specify it when you are ordering.