

ZS-6123BP

GP-IB Adapter

User's Manual

Ver. 1.0



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1. Outline

ZS-6123BP is a GP-IB adapter with 8bit bidirectional data bus, 8bit address signal, and other signals.

ZS-6123BP can be easily connected between GP-IB bus signal and parallel signal such as BCD.

Model	GP-IB signal	DATA signal	Feature
ZS-6123BP	GP-IB (Standard)	FC-50L	It is able to connect GP-IB cable directly.

Type of connector:

GP-IB : 57LE-20240-77COD35G (DDK) : IEEE488 standard

FC-50L : FAP-5001-1202-0BF (Yamaichi) : L-angle 50-conductor flat cable

2. Features

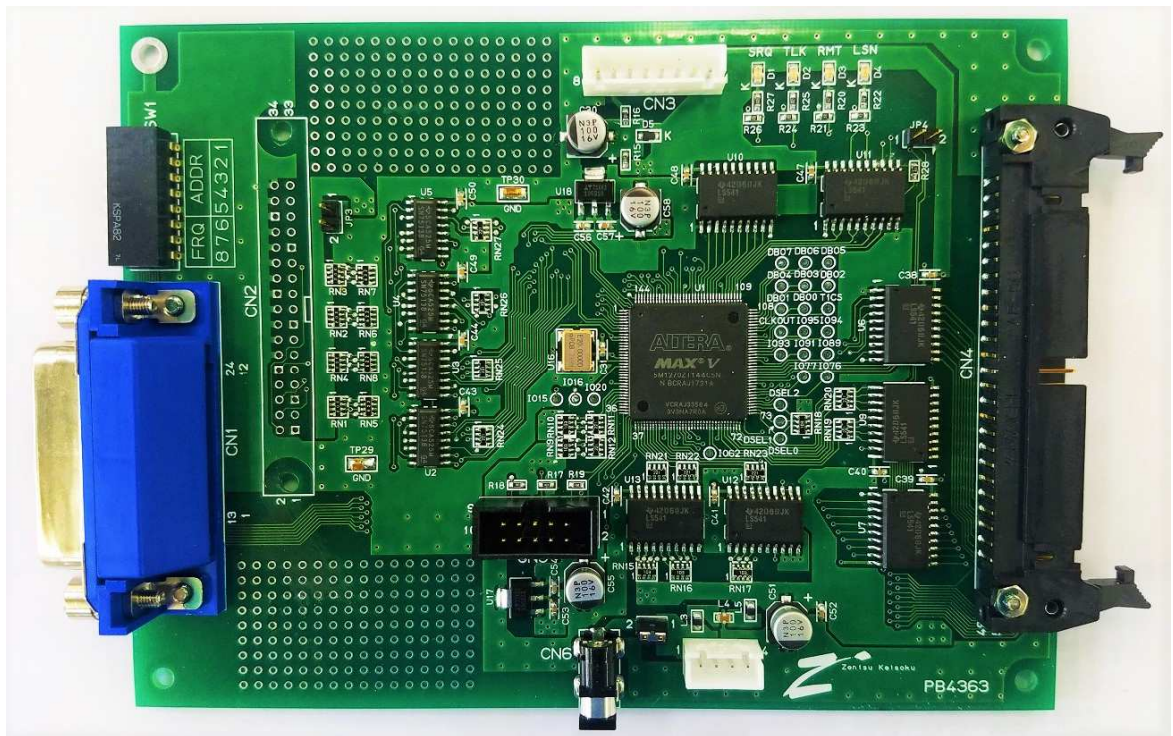
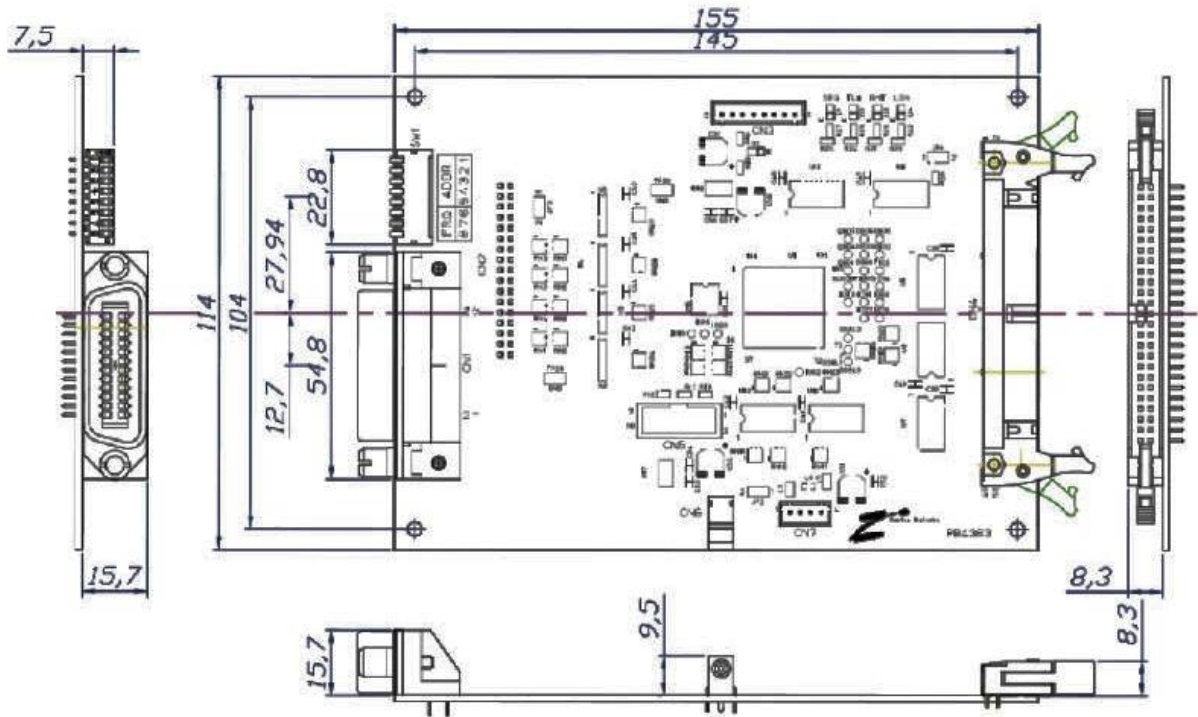
- (1) Timing and other design is unnecessary.
- (2) I/O data can be expanded up to 256 bytes.
- (3) It can be expanded address by attaching an external address counter.

3. Specifications

- (1) This product compliant with GP-IB interface standard (IEEE Std 488-1978)
- (2) Interface function: SH1, AH1, T6L, 4SR1, RL1, PP0, DC1, DT1, C0
- (3) Input operation: It becomes a talker and sends the output data of the connected device to the GP-IB. Signal level: TTL (fan-in = 1)
- (4) Output operation: It becomes a listener and sends the input data of the GP-IB to the connected device. Signal level: TTL (fan-out = 10)
- (5) Power: +5V 0.5A
- (6) Size (Board): 114 x 155 x 30 (H) mm
- (7) Weight: 150g or less
- (8) Accessories

Model	Name	Type	Quantity
ZS-6123BP	CN4 Connector	FAS-5001-2101-0BF (Yamaichi)	1
	CN7 Cable	For DC power, length 60cm	1

4. Appearance



Model	Connector			
	C1	CN4	CN3	CN7
ZS-6123BP	GP-IB	FC-50L	B8B-XH-A	B4B-XH-A

5. Signal and Switch

5.1 Input signal

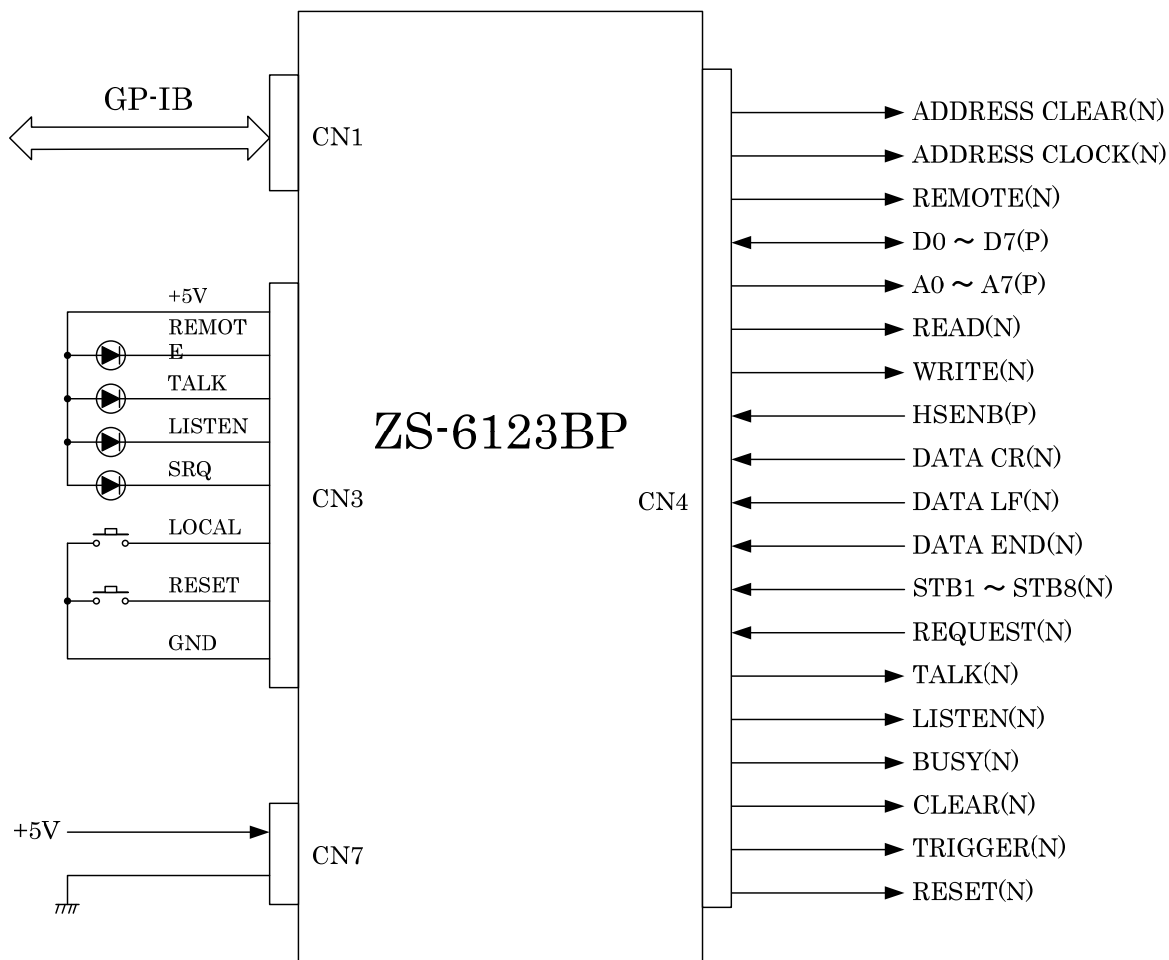
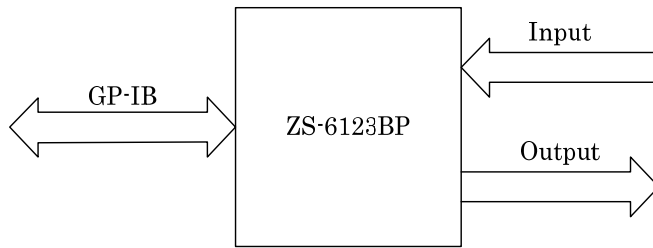


Chart 5.1

Note) Output driver is equivalent to SN74LS541.

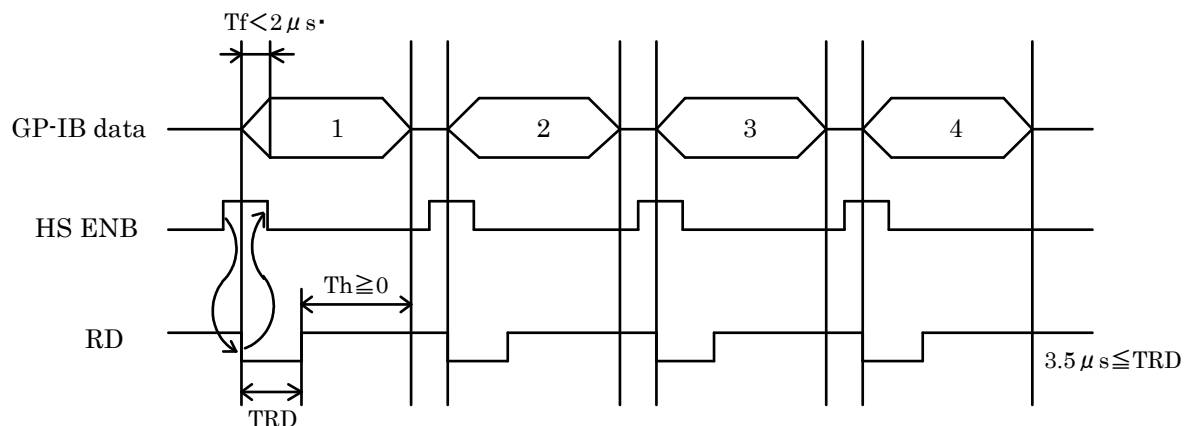
5.2 Signal description



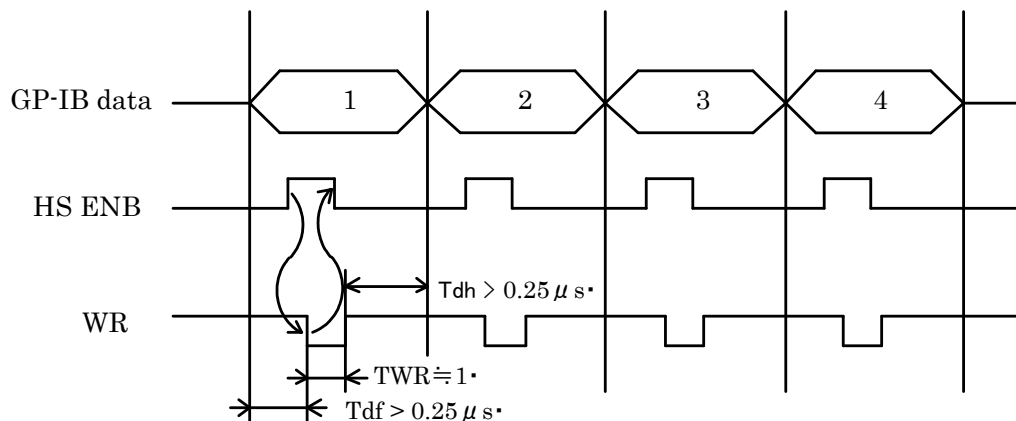
Input and output in this manual are defined as shown above.

Signal level is TTL except for LED lighting.

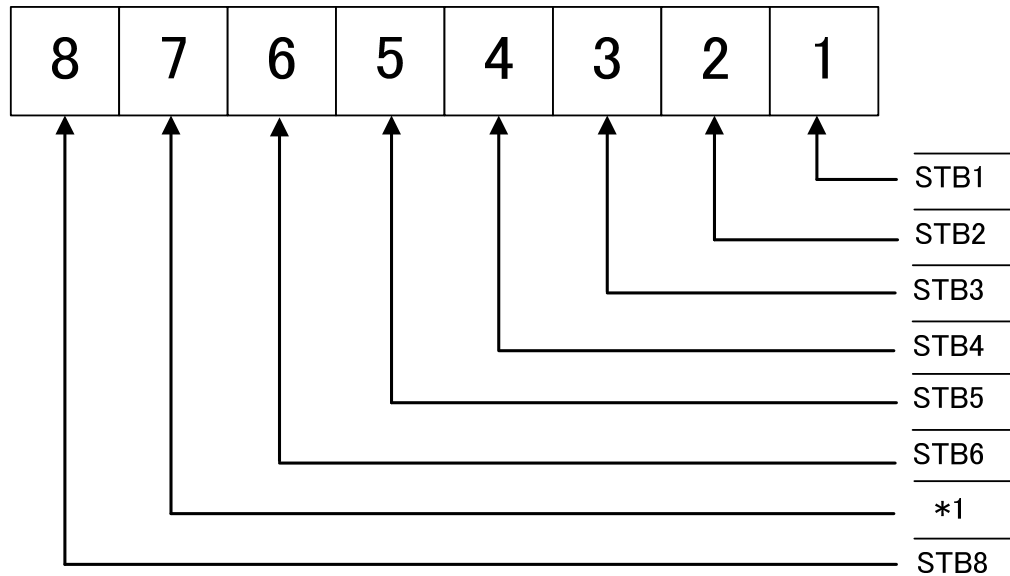
- D0 to D7 : Bidirectional bus for I/O data.
- A0 to A7 : Address bus, it decodes this signal and select the data of the connected circuit.
- HS ENB : When this signal is set to High or Open with the data transfer enable signal, the GP-IB handshake will be usable.
- READ : It is a strobe signal when reading data of the connection circuit to GP-IB.
- WRITE : It is a write pulse signal when data from the GP-IB is output to the connection circuit.
- STB1 to 8 : It is a status signal when SRQ occurs. It will inform the SRQ to the GP-IB controller.



- WR(OUT) : It sends 1 pulse each time when it is received 1 byte of data from GP-IB. The device latches the signal of data bus by “WR” signal and “AND” signal of address signal.

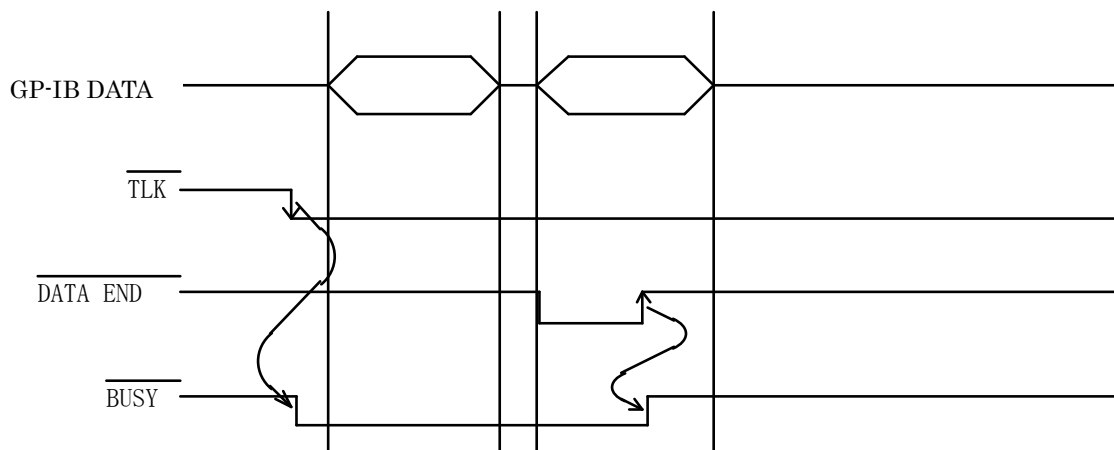


- DATA CR(IN) : When input is set to LOW level at talker, CR code(ASCII) is sent out.
- DATA LF(IN) : When input is set to LOW level at talker, LF code(ASCII) is sent out.
- DATA END(IN) : When input becomes the HIGH level from the LOW level, talker operation is stop. It connects the gate signal of the last byte and EOI is output.
- STB1 to STB8(IN) : It inputs the status data (negative logic) to the controller when SRQ occurs.



*1: Set "1" when SRQ occurs and become "0" after serial polling.

- REQUEST(IN) : At the rising of this signal, SRQ is generated.
- SRQ : ZS-6123BP generates SRQ when REQUEST signal becomes LOW level from HIGH level. The controller performs serial polling and checks the status byte. After serial polling is completed, SRQ is reset.
- TLK(OUT) : It becomes LOW level when it is a talker.
- LSN(OUT) : It becomes LOW level when it is a listener.
- BUSY(OUT) : It becomes the LOW level at the falling of TLK output signal and return to the HIGH level at the falling of DATA END input signal. The BUSY signal is a signal indicating that is being sent and is used for data hold signal of the output device.



ADR-CR(OUT) : This signal clears the external address counter.

ADR-CK(OUT) : This is clock signal for external address counter.

Please count up at the rising of this signal.

CLR(OUT) : When receiving SDC command or DCL command from the GP-IB controller, it outputs 2 μ s negative pulse.

TRG(OUT) : When receiving GET command from the GP-IB controller, it outputs 2 μ s negative pulse.

RESET(OUT) : It outputs the LOW level signal when the power ON and reset signal is input.

RESET(IN) : Input for external reset switch with pull-up resistor 10k Ω .

LED TLK(OUT) : Output for the lighting the external LED with current limiting resistor 1k Ω .
It becomes the LOW level at the talker.

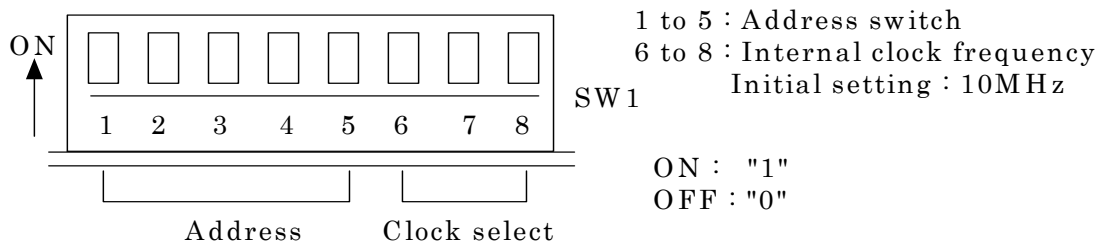
LED LSN(OUT) : Output for the lighting the external LED with current limiting resistor 1k Ω .
It becomes the LOW level at the listener.

LED SRQ(OUT) : Output for the lighting the external LED with current limiting resistor 1k Ω .
It becomes the LOW level when SRQ is generated.

LED RMT(OUT) : Output for the lighting the external LED with current limiting resistor 1k Ω .
It becomes the LOW level when it is remote operation.

5.3 Address switch of GP-IB device

Set the GP-IB device address of the adapter.



#	Frequency
0	78.125KHz
1	156.25KHz
2	312.5KHz
3	625KHz
4	1.25MHz
5	2.5MHz
6	5MHz
7	10MHz

Note) When using an external address switch, please turn off all of this switch.

Note) Although the internal clock frequency is initialized to 10MHz. if it changes to lower the frequency, the output pulse width such as TRG will be longer.

6. Input / Output data

BCD and binary parallel signal equipment can be easily transfer data to PC via GP-IB interface by adding address decoder, data latch circuit and gate circuit. It is necessary to use the signal of ZS-6123BP data buses D0 to D7, address bus A0 to A7, WR, RD, ADR-CR, ADR-LF in this case.

6.1 Example for expanding output data.

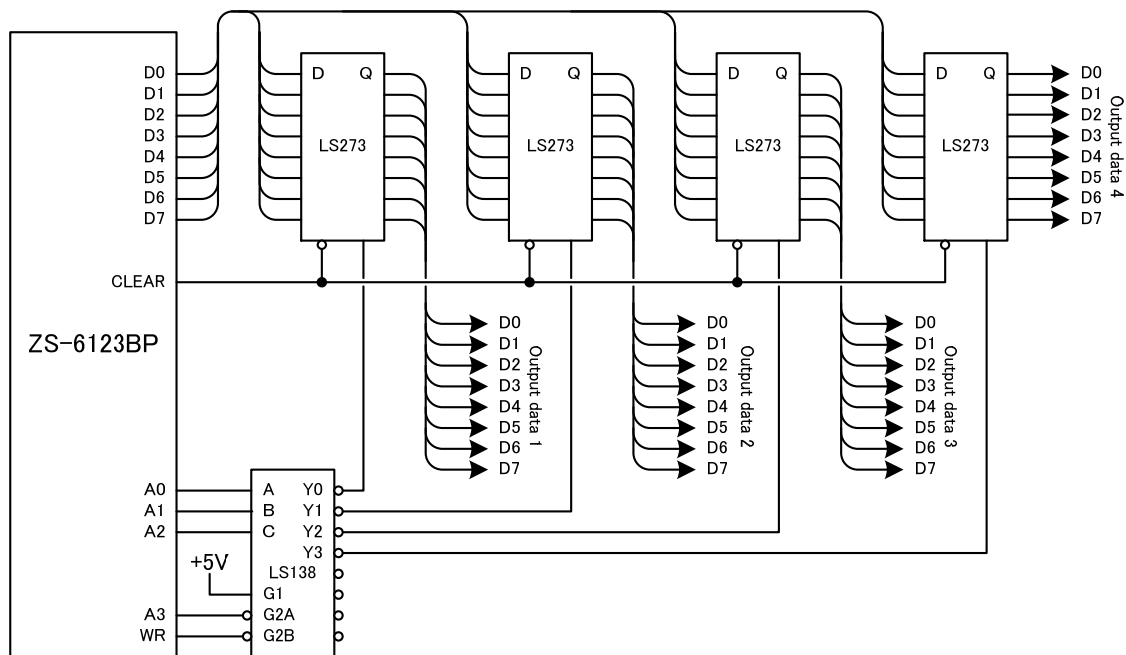


Chart 6.1

Note) In this circuit example, the number of output data can be expanded up to 8 bytes by adding a latch circuit LS273.

6.2 Example for expanding input data

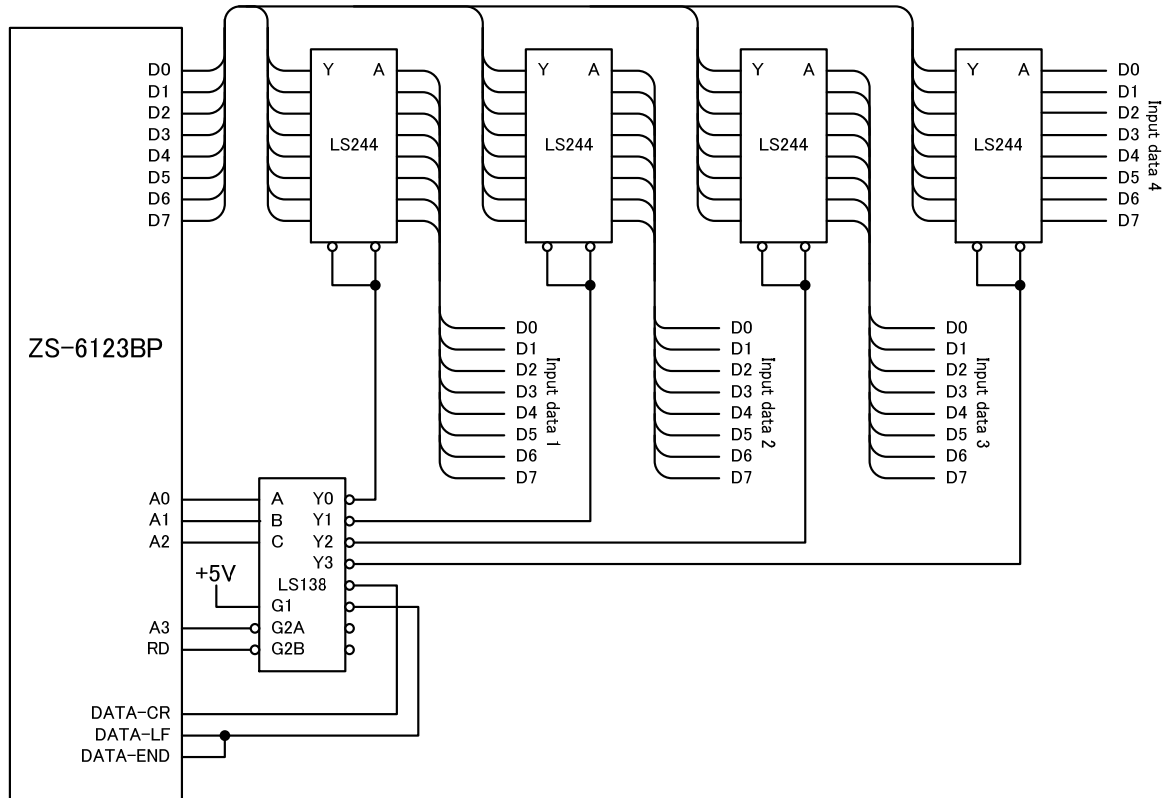
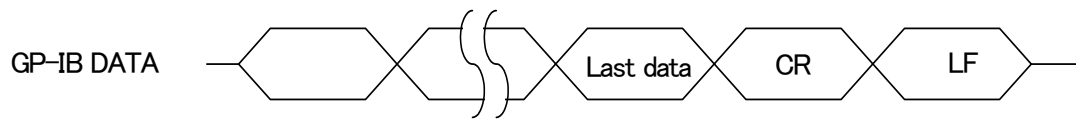


Chart 6.2

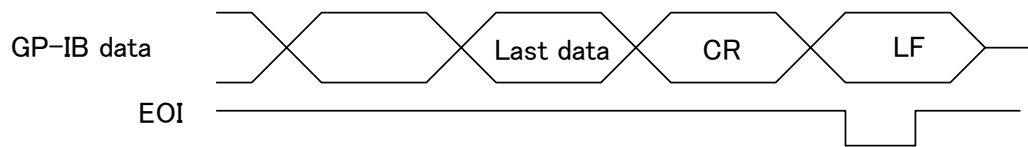
Note) In this circuit example, CR and LF are used as delimiters, and EOI is output at the same time as LF. The STROBE signal for the final data is input to DATAEND. When the signal is not input, ZS-6123BP will continue to send data to the GP-IB.

6.3 How to generate delimiters

Connect the decoder output of the external additional circuit to DATA CR, DATA LF, DATA END according to the code of delimiter.

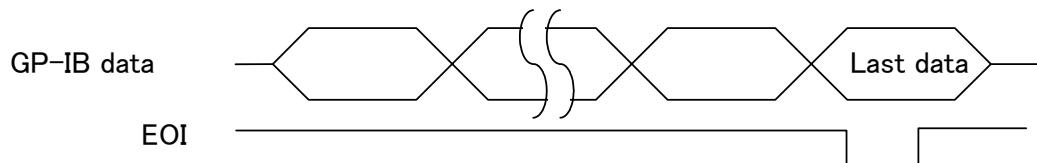


- 1) When outputting EOI at the same time as CR, LF code and LF, connect the strobe before the last data of data strobe created by the decoder to DATA CR and the strobe of the last data to DATA LF and DATA END. It is able to be sent up to 254 bytes of data to GP-IB.



- 2) In case of EOI delimiter.

Connect to the DATA END of the last data of the data strobe created by the decoder. It is able to be sent up to 256 bytes of data to GP-IB.



7.Connecting table

7.1 CN1 GP-IB connector signal table

Signal	Pin number		Signal
DIO1	1	13	DIO5
DIO2	2	14	DIO6
DIO3	3	15	DIO7
DIO4	4	16	DIO8
EOI	5	17	REN
DAV	6	18	GND
NRFD	7	19	GND
NDAC	8	20	GND
IFC	9	21	GND
SRQ	10	22	GND
ATN	11	23	GND
SHILD	12	24	GND

57LE-20240-77COD35G(DDK)

7.2 CN4 Connector signal table

Signal	Pin number		Signal
RESERVE	1	2	GND
CLEAR *1	3	4	GND
RESET *2	5	6	GND
TRIGGER	7	8	GND
ADR-CR	9	10	GND
ADR-CK	11	12	GND
RD	13	14	GND
WR	15	16	GND
HSENB	17	18	GND
BUSY	19	20	GND
REQUEST	21	22	LISTEN
REMOTE	23	24	TALK
STB6	25	26	STB8
STB4	27	28	STB5
STB2	29	30	STB3
DATA-END	31	32	STB1
DATA-CR	33	34	DATA-LF
D6	35	36	D7
D4	37	38	D5
D2	39	40	D3
D0	41	42	D1
A6	43	44	A7
A4	45	46	A5
A2	47	48	A3
A0	49	50	A1

FC-50L: FAP-5001-1202-0BF (Yamaichi)

Note) +5V power supply is supplied from the CN7 connector.

Note) Pin number 3 and 5 are reversed in the ZS-6123AP. Please be careful for connecting to the device.

*1 In the ZS-6123AP, the REST signal.

*2 In the ZS-6123AP, the CLEAR signal.

7.3 CN3 Connector signal

Please attach this connector when attaching monitor LED and switch to the outside.

Pin number	Signal
1	+5V
2	REMOTE LED
3	SRQ LED
4	TALK LED
5	LISTEN LED
6	LOCAL SW
7	RESET SW
8	GND

B8B-XH-A (JST)

7.4 CN7 Connector signal

Pin number	Signal
1	+5V
2	+5V
3	GND
4	GND

B4B-XH-A (JST)

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 data 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 of 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.
 - Change of power supply and voltage.
 - This warranty provision is effective only in Japan.