IMP-WB-2
Hardware User Manual

Version: V.1.2.0

Date: 2017.01

http://www.epcio.com.tw

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Chapter 1 Overview

1.1 Introduction

IMP-WB-2 is a dedicated adapter developed by the MSL of ITRI for use with the Panasonic MINAS AC Series servo drives. IMP-WB-2 can connect the Intelligent Motion control Platform, IMP-2, with servo drives, simplifying the adaption between peripheral devices during the wiring process. Through dedicated adapter cables, IMP-WB-2 can also connect with servo drives manufactured by Mitsubishi, Delta, and Yaskawa.

1.2 System Connection Diagram

The system connection diagram for the connection between the IMP-WB-2 dedicated adapter and the IMP-2 is shown in Fig. 1-1. IMP-WB-2 is connected with IMP-2 through the SCSI II 100-Pin cable and the SCSI II 68-Pin cable. In addition, IMP-WB-2 can be connected to drives of various brands via the servo connector and servo connector adapter cable of each axis (up to 8 axes) in order to send motion control commands from IMP-2 to the drives.

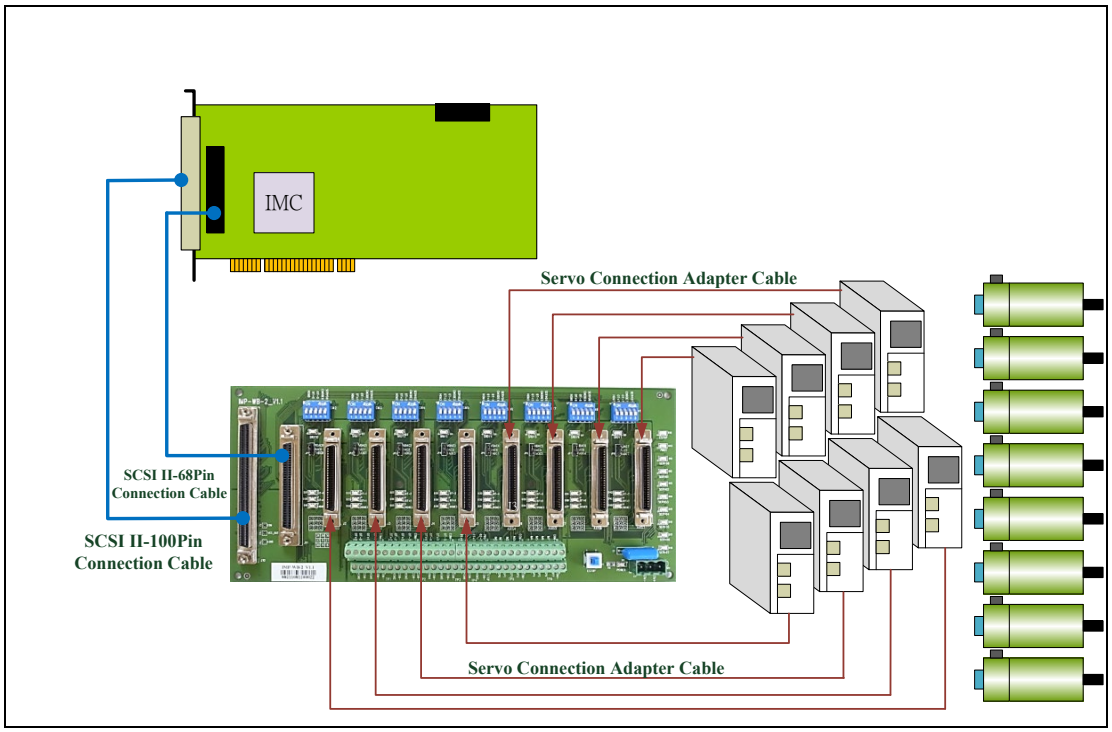


Fig.1-1 System Connection Diagram

Chapter 2 Hardware Installation and Operation

2.1 Basic Installation Procedure of the System

A. Before carrying out the basic installation of the system, please carefully read the user manual.

B. Before removing the IMP-WB-2 adapter from the anti-static bag, please execute the following steps to avoid electrostatic damage.

- Rid your body of static electricity (wear a grounded wrist strap or lightly touch the metal exterior of a computer with your hand).
- Prior to removing the anti-static bag, bring the anti-static bag into contact with the metal exterior of a computer gently.
- When removing the IMP-WB-2 adapter, avoid touching the circuits or components on the board.

C. After removing IMP-WB-2 from its package, please examine the adapter for any obvious damage caused by external force (e.g., lost, deformed, or damaged parts). If such damage is discovered, please stop the installation process, return the adapter to the anti-static bag, and immediately contact customer service or the retailer.

D. Be sure to unplug/turn off the power before performing the wiring steps listed below.

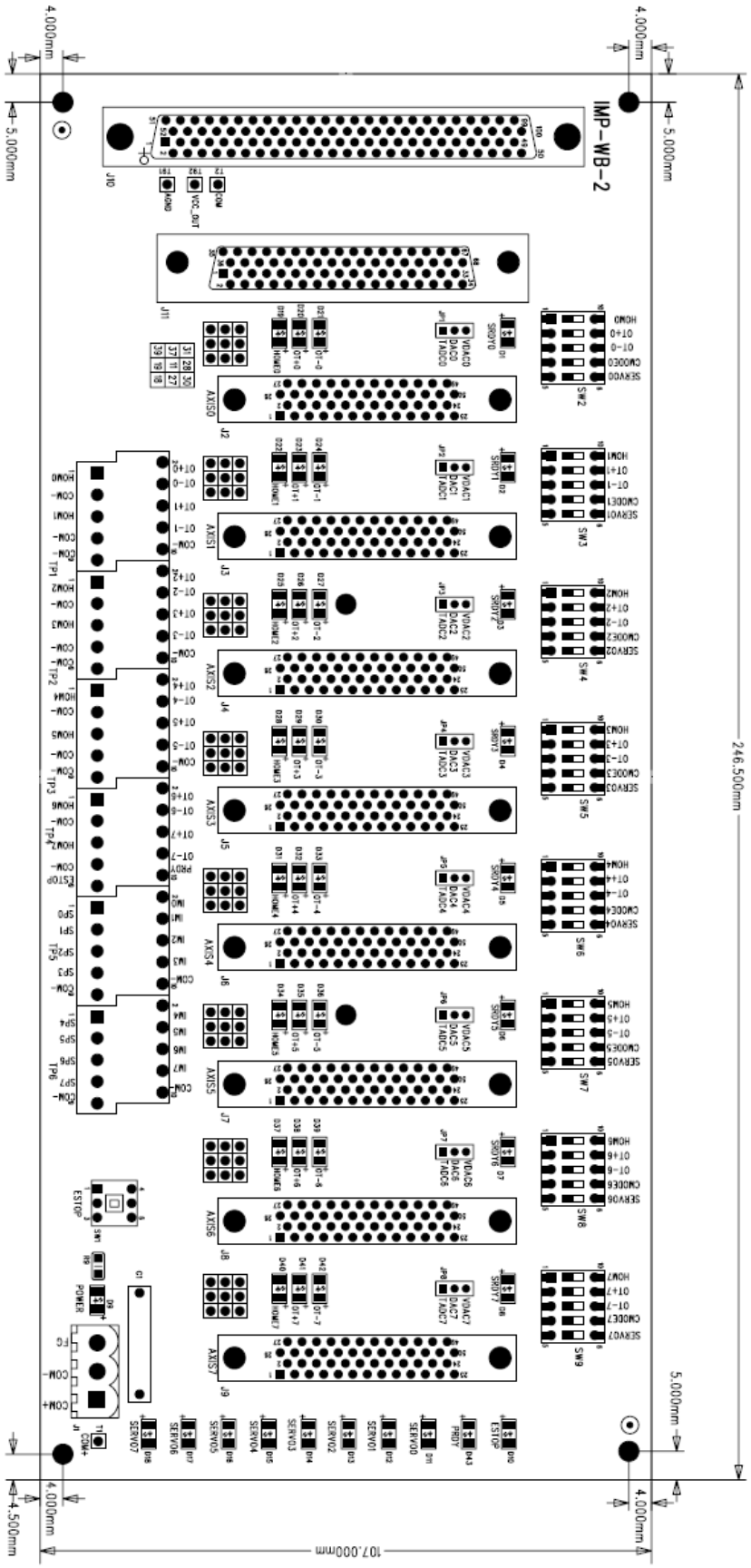
- Connect the adapter to the servo drives through the servo connectors J2~J11.
- Refer to the pin assignments of terminal blocks TP1~TP6 for the wiring of local I/O.
- Connect the adapter to IMP-2 through connectors J10 and J11 and the SCSI II 100-Pin and SCSI II 68-Pin cables.
- Connect an external 24 V DC power supply to connector J1 of IMP-WB-2.

E. IMP-WB-2 must be used with IMP-2 (please make sure that IMP-2 has been installed completely). Test the adapter through IMP-2 to determine whether the former can work in a normal manner. The user can also judge

by inspecting the indicators (for the configuration of the indicators, please refer to section **2.4**).

2.2 Board Layout and Mechanical Dimensions

Component	Name	Description
J1	3-Pin Connector	To connect with an external 24 V DC power supply. Please refer to section 2.3.1.
J2~J9	Servo Connectors	To connect with servo drives. Please refer to section 2.3.2.
J10	SCSI II 100-Pin Connector	To connect with connector J2 of IMP-2. Please refer to section 2.3.3.
J11	SCSI II 68-Pin Connector	To connect with connector J3 of IMP-2. Please refer to section 2.3.3.
TP1~TP6	Wiring Terminal Blocks	To provide wiring for local I/O. Please refer to section 2.3.4.
SW1	ESTOP Switch	Emergency stop switch. Please refer to section 2.3.5.
SW2~SW9	Simulation Switches	Simulate as local input switches. Please refer to section 2.3.6.
JP1~JP8	Velocity or Torque Command Jumper Blocks	To switch between velocity commands and torque commands. Please refer to section 2.3.7.



Note: The screw hole diameter is 3.57mm.

Fig. 2-1 Board Layout and Mechanical Dimensions

2.3 Pin Assignments

2.3.1 Pin Assignments of Terminal Male Plug (J1)

For the connection of IMP-WB-2 to an external 24 V DC power supply. COM+ is connected to the 24 V DC power supply, and COM- is connected to the 24 V DC power supply ground.

Pin	Name	Reference	Description
1	COM+	COM-	Positive terminal for external 24 V power supply
2	COM-	--	Negative terminal for external 24 V power supply
3	FG		Field Ground

2.3.2 Pin Assignments of Servo Connectors (J2~J9)

These connectors can connect not only with Panasonic MINAS AC Series drives through dedicated servo connector adapter cables, but also with Mitsubishi MR-J3, Delta ASDA-A2, and Yaskawa Σ-V SGDV drives through different dedicated servo connector adapter cables.

(1) Pin Assignments of Connector J2

Pin	Name	Panasonic's Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA0+	PULS1	J10.39	AGND	Group-0 pulse output. Positive terminal of phase-A differential signals
4	PA0-	PULS2	J10.40	AGND	Group-0 pulse output. Negative terminal of phase-A differential signals
5	PB0+	SIGN1	J10.41	AGND	Group-0 pulse output. Positive terminal of phase-B differential signals
6	PB0-	SIGN2	J10.42	AGND	Group-0 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		"Inhibition of CW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		"Inhibition of CCW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC0/floating	SPR/TRQR	J10.2		Whether the pin is connected with DAC0 analog output is set by JP1

15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC0/floating	CCWTL/TRQR	J10.2		Whether the pin is connected with DAC0 analog output is set by JP1
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA0+	OA+	J10.21	AGND	Group-0 encoder input. Positive terminal of phase-A differential signals
22	EA0-	OA-	J10.22	AGND	Group-0 encoder input. Negative terminal of phase-A differential signals
23	EC0+	OZ+	J10.25	AGND	Group-0 encoder input. Positive terminal of phase-Z differential signals
24	EC0-	OZ-	J10.26	AGND	Group-0 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		“Zero Speed Clamp” is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON0	SRV-ON	J10.12		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE0	C-MODE	--		Connect to “Control Mode Switch Input” of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		“Inhibition of command pulse input” is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY0	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM0	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP0	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive
44	PA0+	PULSH1	J10.39	AGND	Group-0 pulse output. Positive terminal of phase-A differential signals
45	PA0-	PULSH2	J10.40	AGND	Group-0 pulse output. Negative terminal of phase-A differential signals
46	PB0+	SIGNH1	J10.41	AGND	Group-0 pulse output. Positive terminal of phase-B differential signals
47	PB0-	SIGNH2	J10.42	AGND	Group-0 pulse output. Negative terminal of phase-B differential signals
48	EB0+	OB+	J10.23	AGND	Group-0 encoder input. Positive terminal of phase-B differential signals
49	EB0-	OB-	J10.24	AGND	Group-0 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(2) Pin Assignments of Connector J3

Pin	Name	Panasonic's Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA1+	PULS1	J10.89	AGND	Group-1 pulse output. Positive terminal of phase-A differential signals
4	PA1-	PULS2	J10.90	AGND	Group-1 pulse output. Negative terminal of phase-A differential signals
5	PB1+	SIGN1	J10.91	AGND	Group-1 pulse output. Positive terminal of phase-B differential signals
6	PB1-	SIGN2	J10.92	AGND	Group-1 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		"Inhibition of CW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		"Inhibition of CCW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC1/floating	SPR/TRQR	J10.3		Whether the pin is connected with DAC1 analog output is set by JP2
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC1/floating	CCWTL/TRQR	J10.3		Whether the pin is connected with DAC1 analog output is set by JP2
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA1+	OA+	J10.71	AGND	Group-1 encoder input. Positive terminal of phase-A differential signals
22	EA1-	OA-	J10.72	AGND	Group-1 encoder input. Negative terminal of phase-A differential signals
23	EC1+	OZ+	J10.75	AGND	Group-1 encoder input. Positive terminal of phase-Z differential signals
24	EC1-	OZ-	J10.76	AGND	Group-1 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		"Zero Speed Clamp" is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON1	SRV-ON	J10.62		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE1	C-MODE	--		Connect to "Control Mode Switch Input" of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		"Inhibition of command pulse input" is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY1	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused

38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM1	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP1	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive
44	PA1+	PULSH1	J10.89	AGND	Group-1 pulse output. Positive terminal of phase-A differential signals
45	PA1-	PULSH2	J10.90	AGND	Group-1 pulse output. Negative terminal of phase-A differential signals
46	PB1+	SIGNH1	J10.91	AGND	Group-1 pulse output. Positive terminal of phase-B differential signals
47	PB1-	SIGNH2	J10.92	AGND	Group-1 pulse output. Negative terminal of phase-B differential signals
48	EB1+	OB+	J10.73	AGND	Group-1 encoder input. Positive terminal of phase-B differential signals
49	EB1-	OB-	J10.74	AGND	Group-1 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(3) Pin Assignments of Connector J4

Pin	Name	Panasonic’s Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA2+	PULS1	J10.43	AGND	Group-2 pulse output. Positive terminal of phase-A differential signals
4	PA2-	PULS2	J10.44	AGND	Group-2 pulse output. Negative terminal of phase-A differential signals
5	PB2+	SIGN1	J10.45	AGND	Group-2 pulse output. Positive terminal of phase-B differential signals
6	PB2-	SIGN2	J10.46	AGND	Group-2 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		“Inhibition of CW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		“Inhibition of CCW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC2/floating	SPR/TRQR	J10.4		Whether the pin is connected with DAC2 analog output is set by JP3
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC2/floating	CCWTL/TRQR	J10.4		Whether the pin is connected with DAC2 analog output is set by JP3
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA2+	OA+	J10.27	AGND	Group-0 encoder input. Positive terminal of phase-A differential signals

22	EA2-	OA-	J10.28	AGND	Group-0 encoder input. Negative terminal of phase-A differential signals
23	EC2+	OZ+	J10.31	AGND	Group-0 encoder input. Positive terminal of phase-Z differential signals
24	EC2-	OZ-	J10.32	AGND	Group-0 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		“Zero Speed Clamp” is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON2	SRV-ON	J10.16		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE2	C-MODE	--		Connect to “Control Mode Switch Input” of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		“Inhibition of command pulse input” is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY2	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM2	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP2	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive
44	PA2+	PULSH1	J10.43	AGND	Group-2 pulse output. Positive terminal of phase-A differential signals
45	PA2-	PULSH2	J10.44	AGND	Group-2 pulse output. Negative terminal of phase-A differential signals
46	PB2+	SIGNH1	J10.45	AGND	Group-2 pulse output. Positive terminal of phase-B differential signals
47	PB2-	SIGNH2	J10.46	AGND	Group-2 pulse output. Negative terminal of phase-B differential signals
48	EB2+	OB+	J10.29	AGND	Group-2 encoder input. Positive terminal of phase-B differential signals
49	EB2-	OB-	J10.30	AGND	Group-2 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(4) Pin Assignments of Connector J5

Pin	Name	Panasonic’s Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA3+	PULS1	J10.93	AGND	Group-3 pulse output. Positive terminal of phase-A differential signals
4	PA3-	PULS2	J10.94	AGND	Group-3 pulse output. Negative terminal of phase-A differential signals
5	PB3+	SIGN1	J10.95	AGND	Group-3 pulse output. Positive terminal of phase-B differential signals
6	PB3-	SIGN2	J10.96	AGND	Group-3 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output

8	COM-	CWL	J10.55		“Inhibition of CW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		“Inhibition of CCW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC3/floating	SPR/TRQR	J10.52		Whether the pin is connected with DAC3 analog output is set by JP4
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC3/floating	CCWTL/TRQR	J10.52		Whether the pin is connected with DAC3 analog output is set by JP4
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA3+	OA+	J10.77	AGND	Group-3 encoder input. Positive terminal of phase-A differential signals
22	EA3-	OA-	J10.78	AGND	Group-3 encoder input. Negative terminal of phase-A differential signals
23	EC3+	OZ+	J10.81	AGND	Group-3 encoder input. Positive terminal of phase-Z differential signals
24	EC3-	OZ-	J10.82	AGND	Group-3 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		“Zero Speed Clamp” is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON3	SRV-ON	J10.66		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE3	C-MODE	--		Connect to “Control Mode Switch Input” of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		“Inhibition of command pulse input” is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY3	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM3	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP3	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive
44	PA3+	PULSH1	J10.93	AGND	Group-3 pulse output. Positive terminal of phase-A differential signals
45	PA3-	PULSH2	J10.94	AGND	Group-3 pulse output. Negative terminal of phase-A differential signals
46	PB3+	SIGNH1	J10.95	AGND	Group-3 pulse output. Positive terminal of phase-B differential signals
47	PB3-	SIGNH2	J10.96	AGND	Group-3 pulse output. Negative terminal of phase-B differential signals

48	EB3+	OB+	J10.79	AGND	Group-0 encoder input. Positive terminal of phase-B differential signals
49	EB3-	OB-	J10.80	AGND	Group-0 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(5) Pin Assignments of Connector J6

Pin	Name	Panasonic's Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA4+	PULS1	J10.47	AGND	Group-4 pulse output. Positive terminal of phase-A differential signals
4	PA4-	PULS2	J10.48	AGND	Group-4 pulse output. Negative terminal of phase-A differential signals
5	PB4+	SIGN1	J10.49	AGND	Group-4 pulse output. Positive terminal of phase-B differential signals
6	PB4-	SIGN2	J10.50	AGND	Group-4 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		"Inhibition of CW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		"Inhibition of CCW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC4/floating	SPR/TRQR	J10.53		Whether the pin is connected with DAC4 analog output is set by JP5
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC4/floating	CCWTL/TRQR	J10.53		Whether the pin is connected with DAC4 analog output is set by JP5
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA4+	OA+	J10.33	AGND	Group-4 encoder input. Positive terminal of phase-A differential signals
22	EA4-	OA-	J10.34	AGND	Group-4 encoder input. Negative terminal of phase-A differential signals
23	EC4+	OZ+	J10.37	AGND	Group-4 encoder input. Positive terminal of phase-Z differential signals
24	EC4-	OZ-	J10.38	AGND	Group-4 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		"Zero Speed Clamp" is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON4	SRV-ON	J10.20		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE4	C-MODE	--		Connect to "Control Mode Switch Input" of a Panasonic servo drive

33	COM-	INH/INTSPD1	J10.55		"Inhibition of command pulse input" is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY4	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM4	IM	--	AGND	Connect to "Torque Control Signal Output" of a Panasonic servo drive
43	SP4	SP	--	AGND	Connect to "Velocity Control Signal Output" of a Panasonic servo drive
44	PA4+	PULSH1	J10.47	AGND	Group-4 pulse output. Positive terminal of phase-A differential signals
45	PA4-	PULSH2	J10.48	AGND	Group-4 pulse output. Negative terminal of phase-A differential signals
46	PB4+	SIGNH1	J10.49	AGND	Group-4 pulse output. Positive terminal of phase-B differential signals
47	PB4-	SIGNH2	J10.50	AGND	Group-4 pulse output. Negative terminal of phase-B differential signals
48	EB4+	OB+	J10.35	AGND	Group-4 encoder input. Positive terminal of phase-B differential signals
49	EB4-	OB-	J10.36	AGND	Group-4 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(6) Pin Assignments of Connector J7

Pin	Name	Panasonic's Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA5+	PULS1	J10.97	AGND	Group-5 pulse output. Positive terminal of phase-A differential signals
4	PA5-	PULS2	J10.98	AGND	Group-5 pulse output. Negative terminal of phase-A differential signals
5	PB5+	SIGN1	J10.99	AGND	Group-5 pulse output. Positive terminal of phase-B differential signals
6	PB5-	SIGN2	J10.100	AGND	Group-5 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		"Inhibition of CW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		"Inhibition of CCW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC5/floating	SPR/TRQR	J10.54		Whether the pin is connected with DAC5 analog output is set by JP6
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC5/floating	CCWTL/TRQR	J10.54		Whether the pin is connected with DAC5 analog output is set by JP6

17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA5+	OA+	J10.83	AGND	Group-5 encoder input. Positive terminal of phase-A differential signals
22	EA5-	OA-	J10.84	AGND	Group-5 encoder input. Negative terminal of phase-A differential signals
23	EC5+	OZ+	J10.87	AGND	Group-5 encoder input. Positive terminal of phase-Z differential signals
24	EC5-	OZ-	J10.88	AGND	Group-5 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		“Zero Speed Clamp” is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON5	SRV-ON	J10.70		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE5	C-MODE	--		Connect to “Control Mode Switch Input” of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		“Inhibition of command pulse input” is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY5	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM5	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP5	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive
44	PA5+	PULSH1	J10.97	AGND	Group-5 pulse output. Positive terminal of phase-A differential signals
45	PA5-	PULSH2	J10.98	AGND	Group-5 pulse output. Negative terminal of phase-A differential signals
46	PB5+	SIGNH1	J10.99	AGND	Group-5 pulse output. Positive terminal of phase-B differential signals
47	PB5-	SIGNH2	J10.100	AGND	Group-5 pulse output. Negative terminal of phase-B differential signals
48	EB5+	OB+	J10.85	AGND	Group-5 encoder input. Positive terminal of phase-B differential signals
49	EB5-	OB-	J10.86	AGND	Group-5 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(7) Pin Assignments of Connector J8

Pin	Name	Panasonic’s Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA6+	PULS1	J11.25	AGND	Group-6 pulse output. Positive terminal of phase-A differential signals

4	PA6-	PULS2	J11.27	AGND	Group-6 pulse output. Negative terminal of phase-A differential signals
5	PB6+	SIGN1	J11.29	AGND	Group-6 pulse output. Positive terminal of phase-B differential signals
6	PB6-	SIGN2	J11.31	AGND	Group-6 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		“Inhibition of CW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		“Inhibition of CCW-direction drive input” is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC6/floating	SPR/TRQR	J11.3		Whether the pin is connected with DAC6 analog output is set by JP7
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC6/floating	CCWTL/TRQR	J11.3		Whether the pin is connected with DAC6 analog output is set by JP7
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA6+	OA+	J11.13	AGND	Group-6 encoder input. Positive terminal of phase-A differential signals
22	EA6-	OA-	J11.15	AGND	Group-6 encoder input. Negative terminal of phase-A differential signals
23	EC6+	OZ+	J11.21	AGND	Group-6 encoder input. Positive terminal of phase-Z differential signals
24	EC6-	OZ-	J11.23	AGND	Group-6 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
26	COM-	VS-SEL/ZEROSPD	J10.55		“Zero Speed Clamp” is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON6	SRV-ON	J11.11		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE6	C-MODE	--		Connect to “Control Mode Switch Input” of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		“Inhibition of command pulse input” is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY6	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM6	IM	--	AGND	Connect to “Torque Control Signal Output” of a Panasonic servo drive
43	SP6	SP	--	AGND	Connect to “Velocity Control Signal Output” of a Panasonic servo drive

44	PA6+	PULSH1	J11.25	AGND	Group-6 pulse output. Positive terminal of phase-A differential signals
45	PA6-	PULSH2	J11.27	AGND	Group-6 pulse output. Negative terminal of phase-A differential signals
46	PB6+	SIGNH1	J11.29	AGND	Group-6 pulse output. Positive terminal of phase-B differential signals
47	PB6-	SIGNH2	J11.31	AGND	Group-6 pulse output. Negative terminal of phase-B differential signals
48	EB6+	OB+	J11.17	AGND	Group-6 encoder input. Positive terminal of phase-B differential signals
49	EB6-	OB-	J11.19	AGND	Group-6 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

(8) Pin Assignments of Connector J9

Pin	Name	Panasonic's Corresponding Assignment	Signal Flow	Reference	Description
1	NC				Unused
2	NC				Unused
3	PA7+	PULS1	J11.26	AGND	Group-7 pulse output. Positive terminal of phase-A differential signals
4	PA7-	PULS2	J11.28	AGND	Group-7 pulse output. Negative terminal of phase-A differential signals
5	PB7+	SIGN1	J11.30	AGND	Group-7 pulse output. Positive terminal of phase-B differential signals
6	PB7-	SIGN2	J11.32	AGND	Group-7 pulse output. Negative terminal of phase-B differential signals
7	COM+	COM+	J10.6	COM-	+24 V output
8	COM-	CWL	J10.55		"Inhibition of CW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
9	COM-	CCWL	J10.55		"Inhibition of CCW-direction drive input" is disabled when this COM- is connected to a Panasonic servo drive
10	COM-	BRKOFF-	J10.55		+24 V power supply ground
11	NC				Unused
12	NC				Unused
13	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
14	DAC7/floating	SPR/TRQR	J11.4		Whether the pin is connected with DAC7 analog output is set by JP8
15	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
16	DAC7/floating	CCWTL/TRQR	J11.4		Whether the pin is connected with DAC7 analog output is set by JP8
17	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage
18	NC				Unused
19	NC				Unused
20	NC				Unused
21	EA7+	OA+	J11.14	AGND	Group-7 encoder input. Positive terminal of phase-A differential signals
22	EA7-	OA-	J11.16	AGND	Group-7 encoder input. Negative terminal of phase-A differential signals
23	EC7+	OZ+	J11.22	AGND	Group-7 encoder input. Positive terminal of phase-Z differential signals
24	EC7-	OZ-	J11.24	AGND	Group-7 encoder input. Negative terminal of phase-Z differential signals
25	AGND	GND	J10.1		Reference terminal for pulse and DAC output voltage

26	COM-	VS-SEL/ZEROSPD	J10.55		"Zero Speed Clamp" is disabled when this COM- is connected to a Panasonic servo drive
27	NC				Unused
28	NC				Unused
29	SVON7	SRV-ON	J11.12		Servo On signal
30	NC				Unused
31	NC				Unused
32	CMODE7	C-MODE	--		Connect to "Control Mode Switch Input" of a Panasonic servo drive
33	COM-	INH/INTSPD1	J10.55		"Inhibition of command pulse input" is disabled when this COM- is connected to a Panasonic servo drive
34	COM-	S-RDY-	J10.55		+24 V power supply ground
35	SRDY7	S-RDY+	--		Servo Ready signal from a Panasonic servo drive
36	COM-	ALM-	J10.55		+24 V power supply ground
37	NC				Unused
38	COM-	COIN-/AT-SPEED-	J10.55		+24 V power supply ground
39	NC				Unused
40	NC				Unused
41	COM-	COM-	J10.55		+24 V power supply ground
42	IM7	IM	--	AGND	Connect to "Torque Control Signal Output" of a Panasonic servo drive
43	SP7	SP	--	AGND	Connect to "Velocity Control Signal Output" of a Panasonic servo drive
44	PA7+	PULSH1	J11.26	AGND	Group-7 pulse output. Positive terminal of phase-A differential signals
45	PA7-	PULSH2	J11.28	AGND	Group-7 pulse output. Negative terminal of phase-A differential signals
46	PB7+	SIGNH1	J11.30	AGND	Group-7 pulse output. Positive terminal of phase-B differential signals
47	PB7-	SIGNH2	J11.32	AGND	Group-7 pulse output. Negative terminal of phase-B differential signals
48	EB7+	OB+	J11.18	AGND	Group-7 encoder input. Positive terminal of phase-B differential signals
49	EB7-	OB-	J11.20	AGND	Group-7 encoder input. Negative terminal of phase-B differential signals
50	FG	FG	--		Field ground

2.3.3 Pin Assignments of SCSI II (J10 & J11) Connectors

The SCSI II connectors (J10 & J11) of IMP-WB-2 are connected to IMP-2 through the SCSI II 100-Pin and SCSI II 68-Pin cables respectively. Please refer to the system connection diagram (Fig. 1-1) for the connection details.

(1) Pin Assignments of Connector J10

SCSI II 100-PIN CONNECTOR			
Pin Assignment	**Pin**	**Pin**	**Pin Assignment**
AGND	1	51	AGND
DAC0	2	52	DAC3
DAC1	3	53	DAC4
DAC2	4	54	DAC5
+5V	5	55	COM-
COM+	6	56	COM-
COM	7	57	ESTP
COM	8	58	PRDY
HOM0	9	59	HOM1
OT0+	10	60	OT1+
OT0-	11	61	OT1-
SVON0	12	62	SVON1
HOM2	13	63	HOM3

OT2+	14	64	OT3+
OT2-	15	65	OT3-
SVON2	16	66	SVON3
HOM4	17	67	HOM5
OT4+	18	68	OT5+
OT4-	19	69	OT5-
SVON4	20	70	SVON5
EA0+	21	71	EA1+
EA0-	22	72	EA1-
EB0+	23	73	EB1+
EB0-	24	74	EB1-
EC0+	25	75	EC1+
EC0-	26	76	EC1-
EA2+	27	77	EA3+
EA2-	28	78	EA3-
EB2+	29	79	EB3+
EB2-	30	80	EB3-
EC2+	31	81	EC3+
EC2-	32	82	EC3-
EA4+	33	83	EA5+
EA4-	34	84	EA5-
EB4+	35	85	EB5+
EB4-	36	86	EB5-
EC4+	37	87	EC5+
EC4-	38	88	EC5-
PA0+	39	89	PA1+
PA0-	40	90	PA1-
PB0+	41	91	PB1+
PB0-	42	92	PB1-
PA2+	43	93	PA3+
PA2-	44	94	PA3-
PB2+	45	95	PB3+
PB2-	46	96	PB3-
PA4+	47	97	PA5+
PA4-	48	98	PA5-
PB4+	49	99	PB5+
PB4-	50	100	PB5-

Pin	Name	Reference	Description
1	AGND	--	Reference terminal for DAC output voltage
2	DAC0	AGND	Group-0 analog output
3	DAC1	AGND	Group-1 analog output
4	DAC2	AGND	Group-2 analog output
5	+5 V	GND	+5 V voltage output
6	COM+	COM-	Positive terminal of external 24V DC power input
7	COM	--	LIO input reference terminal
8	COM	--	LIO input reference terminal
9	HOM0	COM-	Group 0 HOME input
10	OT0+	COM-	Group-0 positive over-travel input
11	OT0-	COM-	Group-0 negative over-travel input
12	SVON0	COM-	Group-0 Servo On output
13	HOM2	COM-	Group-2 HOME input
14	OT2+	COM-	Group-2 positive over-travel input
15	OT2-	COM-	Group-2 negative over-travel input
16	SVON2	COM-	Group-2 Servo On output
17	HOM4	COM-	Group-4 HOME input
18	OT4+	COM-	Group-4 positive over-travel input
19	OT4-	COM-	Group-4 negative over-travel input
20	SVON4	COM-	Group-4 Servo On output
21	EA0+	--	Group-0 encoder input. Positive terminal of phase-A differential signals

22	EA0-	--	Group-0 encoder input. Negative terminal of phase-A differential signals
23	EB0+	--	Group-0 encoder input. Positive terminal of phase-B differential signals
24	EB0-	--	Group-0 encoder input. Negative terminal of phase-B differential signals
25	EC0+	--	Group-0 encoder input. Positive terminal of phase-Z differential signals
26	EC0-	--	Group-0 encoder input. Negative terminal of phase-Z differential signals
27	EA2+	--	Group-2 encoder input. Positive terminal of phase-A differential signals
28	EA2-	--	Group-2 encoder input. Negative terminal of phase-A differential signals
29	EB2+	--	Group-2 encoder input. Positive terminal of phase-B differential signals
30	EB2-	--	Group-2 encoder input. Negative terminal of phase-B differential signals
31	EC2+	--	Group-2 encoder input. Positive terminal of phase-Z differential signals
32	EC2-	--	Group-2 encoder input. Negative terminal of phase-Z differential signals
33	EA4+	--	Group-4 encoder input. Positive terminal of phase-A differential signals
34	EA4-	--	Group-4 encoder input. Negative terminal of phase-A differential signals
35	EB4+	--	Group-4 encoder input. Positive terminal of phase-B differential signals
36	EB4-	--	Group-4 encoder input. Negative terminal of phase-B differential signals
37	EC4+	--	Group-4 encoder input. Positive terminal of phase-Z differential signals
38	EC4-	--	Group-4 encoder input. Negative terminal of phase-Z differential signals
39	PA0+	--	Group-0 pulse output. Positive terminal of phase-A differential signals
40	PA0-	--	Group-0 pulse output. Negative terminal of phase-A differential signals
41	PB0+	--	Group-0 pulse output. Positive terminal of phase-B differential signals
42	PB0-	--	Group-0 pulse output. Negative terminal of phase-B differential signals
43	PA2+	--	Group-2 pulse output. Positive terminal of phase-A differential signals
44	PA2-	--	Group-2 pulse output. Negative terminal of phase-A differential signals
45	PB2+	--	Group-2 pulse output. Positive terminal of phase-B differential signals
46	PB2-	--	Group-2 pulse output. Negative terminal of phase-B differential signals
47	PA4+	--	Group-4 pulse output. Positive terminal of phase-A differential signals
48	PA4-	--	Group-4 pulse output. Negative terminal of phase-A differential signals
49	PB4+	--	Group-4 pulse output. Positive terminal of phase-B differential signals
50	PB4-	--	Group-4 pulse output. Negative terminal of phase-B differential signals
51	AGND	--	Reference terminal for DAC output voltage
52	DAC3	AGND	Group-3 analog output
53	DAC4	AGND	Group-4 analog output
54	DAC5	AGND	Group-5 analog output
55	COM-	--	Negative terminal of external 24 V DC power input

56	COM-	--	Negative terminal of external 24 V DC power input
57	ESTOP	COM-	Emergency Stop input
58	PRDY	COM-	Position Ready output
59	HOM1	COM-	Group-1 HOME input
60	OT1+	COM-	Group-1 positive over-travel input
61	OT1-	COM-	Group-1 negative over-travel input
62	SVON1	COM-	Group-1 Servo On output
63	HOM3	COM-	Group-3 HOME input
64	OT3+	COM-	Group-3 positive over-travel input
65	OT3-	COM-	Group-3 negative over-travel input
66	SVON3	COM-	Group-3 Servo On output
67	HOM5	COM-	Group-5 HOME input
68	OT5+	COM-	Group-5 positive over-travel input
69	OT5-	COM-	Group-5 negative over-travel input
70	SVON5	COM-	Group-5 Servo On output
71	EA1+	--	Group-1 encoder input. Positive terminal of phase-A differential signals
72	EA1-	--	Group-1 encoder input. Negative terminal of phase-A differential signals
73	EB1+	--	Group-1 encoder input. Positive terminal of phase-B differential signals
74	EB1-	--	Group-1 encoder input. Negative terminal of phase-B differential signals
75	EC1+	--	Group-1 encoder input. Positive terminal of phase-Z differential signals
76	EC1-	--	Group-1 encoder input. Negative terminal of phase-Z differential signals
77	EA3+	--	Group-3 encoder input. Positive terminal of phase-A differential signals
78	EA3-	--	Group-3 encoder input. Negative terminal of phase-A differential signals
79	EB3+	--	Group-3 encoder input. Positive terminal of phase-B differential signals
80	EB3-	--	Group-3 encoder input. Negative terminal of phase-B differential signals
81	EC3+	--	Group-3 encoder input. Positive terminal of phase-Z differential signals
82	EC3-	--	Group-3 encoder input. Negative terminal of phase-Z differential signals
83	EA5+	--	Group-5 encoder input. Positive terminal of phase-A differential signals
84	EA5-	--	Group-5 encoder input. Negative terminal of phase-A differential signals
85	EB5+	--	Group-5 encoder input. Positive terminal of phase-B differential signals
86	EB5-	--	Group-5 encoder input. Negative terminal of phase-B differential signals
87	EC5+	--	Group-5 encoder input. Positive terminal of phase-Z differential signals
88	EC5-	--	Group-5 encoder input. Negative terminal of phase-Z differential signals
89	PA1+	--	Group-1 pulse output. Positive terminal of phase-A differential signals
90	PA1-	--	Group-1 pulse output. Negative terminal of phase-A differential signals
91	PB1+	--	Group-1 pulse output. Positive terminal of phase-B differential signals
92	PB1-	--	Group-1 pulse output. Negative terminal of phase-B differential signals
93	PA3+	--	Group-3 pulse output. Positive terminal of phase-A differential signals
94	PA3-	--	Group-3 pulse output. Negative terminal of phase-A differential signals
95	PB3+	--	Group-3 pulse output. Positive terminal of phase-B differential signals

96	PB3-	--	Group-3 pulse output. Negative terminal of phase-B differential signals
97	PA5+	--	Group-5 pulse output. Positive terminal of phase-A differential signals
98	PA5-	--	Group-5 pulse output. Negative terminal of phase-A differential signals
99	PB5+	--	Group-5 pulse output. Positive terminal of phase-B differential signals
100	PB5-	--	Group-5 pulse output. Negative terminal of phase-B differential signals

(2) Pin Assignments of Connector J11

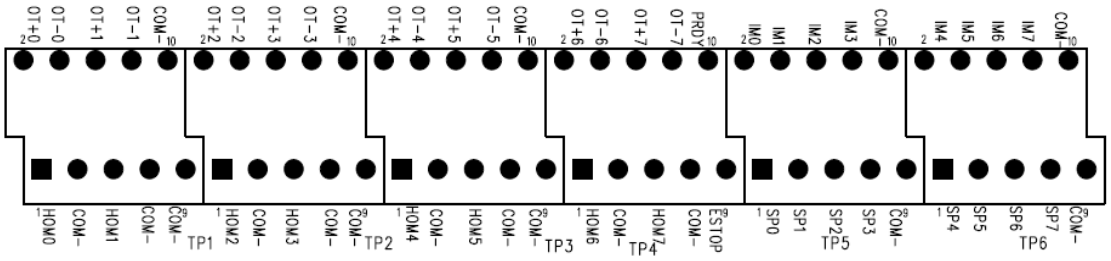
SCSI II 68-PIN CONNECTOR			
Pin Assignment	**Pin**	**Pin**	**Pin Assignment**
AGND	1	35	NC
AGND	2	36	NC
DAC6	3	37	NC
DAC7	4	38	NC
HOM6	5	39	GND
HOM7	6	40	GND
OT6+	7	41	NC
OT7+	8	42	NC
OT6-	9	43	NC
OT7-	10	44	NC
SVON6	11	45	NC
SVON7	12	46	NC
EA6+	13	47	NC
EA7+	14	48	NC
EA6-	15	49	NC
EA7-	16	50	NC
EB6+	17	51	NC
EB7+	18	52	NC
EB6-	19	53	NC
EB7-	20	54	NC
EC6+	21	55	NC
EC7+	22	56	NC
EC6-	23	57	NC
EC7-	24	58	NC
PA6+	25	59	NC
PA7+	26	60	NC
PA6-	27	61	NC
PA7-	28	62	NC
PB6+	29	63	NC
PB7+	30	64	NC
PB6-	31	65	NC
PB7-	32	66	NC
NC	33	67	NC
NC	34	68	NC

Pin	Name	Reference	Description
1	AGND	--	Reference terminal for DAC output voltage
2	AGND	--	Reference terminal for DAC output voltage
3	DAC6	AGND	Group-6 analog output
4	DAC7	AGND	Group-7 analog output
5	HOM6	COM-	Group-6 HOME input
6	HOM7	COM-	Group-7 HOME input
7	OT6+	COM-	Group-6 positive over-travel input
8	OT7+	COM-	Group-7 positive over-travel input
9	OT6-	COM-	Group-6 negative over-travel input

10	OT7-	COM-	Group-7 negative over-travel input
11	SVON6	COM-	Group-6 Servo On output
12	SVON7	COM-	Group-7 Servo On output
13	EA6+	--	Group-6 encoder input. Positive terminal of phase-A differential signals
14	EA7+	--	Group-7 encoder input. Positive terminal of phase-A differential signals
15	EA6-	--	Group-6 encoder input. Negative terminal of phase-A differential signals
16	EA7-	--	Group-7 encoder input. Negative terminal of phase-A differential signals
17	EB6+	--	Group-6 encoder input. Positive terminal of phase-B differential signals
18	EB7+	--	Group-7 encoder input. Positive terminal of phase-B differential signals
19	EB6-	--	Group-6 encoder input. Negative terminal of phase-B differential signals
20	EB7-	--	Group-7 encoder input. Negative terminal of phase-B differential signals
21	EC6+	--	Group-6 encoder input. Positive terminal of phase-Z differential signals
22	EC7+	--	Group-7 encoder input. Positive terminal of phase-Z differential signals
23	EC6-	--	Group-6 encoder input. Negative terminal of phase-Z differential signals
24	EC7-	--	Group-7 encoder input. Negative terminal of phase-Z differential signals
25	PA6+	--	Group-6 pulse output. Positive terminal of phase-A differential signals
26	PA7+	--	Group-7 pulse output. Positive terminal of phase-A differential signals
27	PA6-	--	Group-6 pulse output. Negative terminal of phase-A differential signals
28	PA7-	--	Group-7 pulse output. Negative terminal of phase-A differential signals
29	PB6+	--	Group-6 pulse output. Positive terminal of phase-B differential signals
30	PB7+	--	Group-7 pulse output. Positive terminal of phase-B differential signals
31	PB6-	--	Group-6 pulse output. Negative terminal of phase-B differential signals
32	PB7-	--	Group-7 pulse output. Negative terminal of phase-B differential signals
33~68	NC		Unused

2.3.4 Pin Assignments of Terminal Blocks (TP1~TP6)

(1) Terminal Blocks (TP1~TP6)



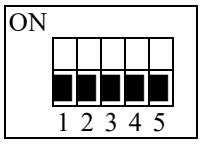
Assignment	Description
COM-	24 V ground
OTn+	Group-n positive over-travel limit switch input
HOMn	Group-n HOME switch input
OTn-	Group-n negative over-travel limit switch input
IMn	Group-n analog control signal output. Refer to Servo Drive User Manual.
SPn	
PRDY	Position Ready output
ESTOP	Emergency Stop input

2.3.5 Description of Emergency Stop Switch (SW1)

Used in parallel with the terminal blocks. If the ESTOP is connected with an external emergency stop button, the ESTOP (SW1) should be set to OFF. If there is no external emergency stop button, this switch can function as an emergency stop button: when the switch is pressed down and therefore set to ON, it is the normal operation state, and when the switch is set to OFF, it is the emergency stop state.

2.3.6 Assignments of Simulation Switches (SW2~SW9)

(1) Simulation Switches (SW2~SW9)



SW2 Pin	1	2	3	4	5
Assignment	HOM1	OT1+	OT1-	MODE1	SVON1
Printed Text	HOM1	OT+1	OT-1	MOD1	INH1
Default	OFF	OFF	OFF	OFF	OFF

SW3 Pin	1	2	3	4	5
Assignment	HOM2	OT2+	OT2-	MODE2	SVON2
Printed Text	HOM2	OT+2	OT-2	MOD2	INH2
Default	OFF	OFF	OFF	OFF	OFF

SW4 Pin	1	2	3	4	5
Assignment	HOM3	OT3+	OT3-	MODE3	SVON3
Printed Text	HOM3	OT+3	OT-3	MOD3	INH3
Default	OFF	OFF	OFF	OFF	OFF

SW5 Pin	1	2	3	4	5
Assignment	HOM4	OT4+	OT4-	MODE4	SVON4
Printed Text	HOM4	OT+4	OT-4	MOD4	INH4
Default	OFF	OFF	OFF	OFF	OFF

SW6 Pin	1	2	3	4	5
Assignment	HOM5	OT5+	OT5-	MODE5	SVON5
Printed Text	HOM5	OT+5	OT-5	MOD5	INH5
Default	OFF	OFF	OFF	OFF	OFF

SW7 Pin	1	2	3	4	5
Assignment	HOM6	OT6+	OT6-	MODE6	SVON6
Printed Text	HOM6	OT+6	OT-6	MOD6	INH6
Default	OFF	OFF	OFF	OFF	OFF

SW8 Pin	1	2	3	4	5
Assignment	HOM7	OT7+	OT7-	MODE7	SVON7
Printed Text	HOM7	OT+7	OT-7	MOD7	INH7
Default	OFF	OFF	OFF	OFF	OFF

SW9 Pin	1	2	3	4	5
Assignment	HOM8	OT8+	OT8-	MODE8	SVON8
Printed Text	HOM8	OT+8	OT-8	MOD8	INH8
Default	OFF	OFF	OFF	OFF	OFF

(2) Description and Settings

- HOMn (n = 0~7): Used in parallel with the terminal blocks. If the Home contact of a terminal block is connected with an external Home sensor, the corresponding HOMn should be set to the OFF position. If there is no external Home sensor for a certain axis, the corresponding dip switch can function as a Home sensor. In that case, a HOMn set to ON indicates that connection has been established with the Home sensor signal of the corresponding axis.
- OTn+ (n = 0~7): Used in parallel with the terminal blocks. If the OT+ contact of a terminal block is connected with an external limit switch, the

corresponding OTn+ should be set to the OFF position. If there is no external limit switch for a certain axis, the corresponding dip switch can function as a limit switch. In that case, an OTn+ set to ON indicates that connection has been established with the positive over-travel limit switch signal of the corresponding axis.

- OTn- (n = 0~7): Used in parallel with the terminal blocks. When the OT- contact of a terminal blocks is connected with an external limit switch, the corresponding OTn- should be set to the OFF position. If there is no external limit switch for a certain axis, the corresponding dip switch can function as a limit switch. In that case, an OTn- set to ON indicates that connection has been established with the negative over-travel limit switch signal of the corresponding axis.
- MODn (n = 0~7): Used for C-MODE (control mode) selection. Please refer to Servo Drive User Manual for the required settings for personal use. Set to OFF when left unused.
- INHn (n = 0~7): Used in parallel with servo drive connectors. If a Servo On signal is to be output from the motion control platform, the corresponding INHn should be set to the OFF position when connected to the drive. An INHn can also be set to the ON position to function as Servo On.

2.3.7 Velocity or Torque Command Jumper Blocks (JP1~JP8)

(1) Pin Assignments

1	Velocity Command (V.CMD)
2	DAC Output
3	Torque Command (T.CMD)

(2) Description and Settings

Jumper Block	JP1	JP2	JP3	JP4
1, 2 Short Circuit	V_CMD1	V_CM 2	V_CMD3	V_CMD4
2, 3 Short Circuit	T_CMD1	T_CMD2	T_CMD3	T_CMD4

Jumper Block	JP5	JP6	JP7	JP8
1, 2 Short Circuit	V_CMD5	V_CMD6	V_CMD7	V_CMD8
2, 3 Short Circuit	T_CMD5	T_CMD6	T_CMD7	T_CMD8

* The jumper settings listed above are ineffective if the pulse mode is set for the motor drives.

2.4 Indicators

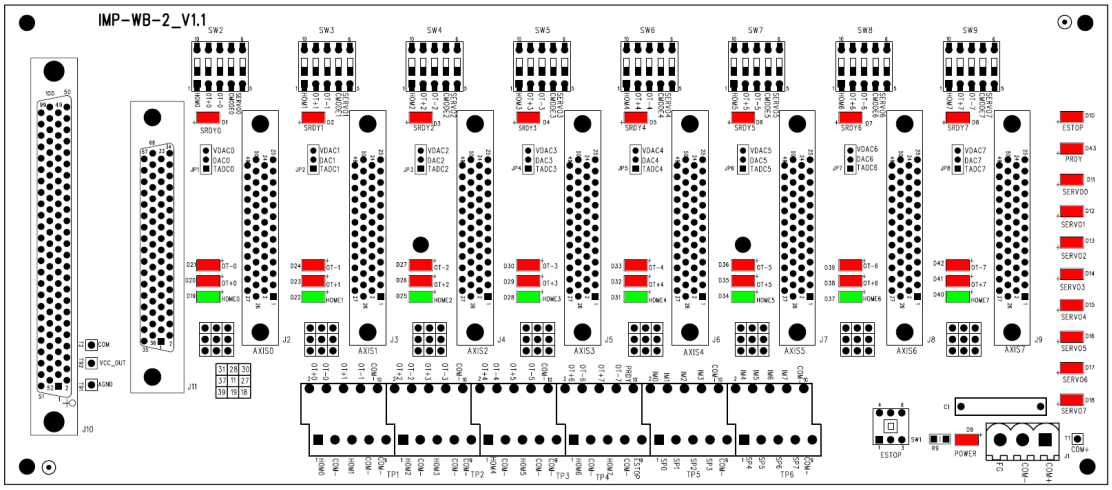


Fig. 2-2 Configuration of Indicators

(1) Assignment of the indicators

Text Printed on The Adapter	LED Color
POWER	Red

Text Printed on The Adapter	Definition	LED Color	Text Printed on The Adapter	Definition	LED Color
SERVO0	SVON0	Red	SERVO4	SVON4	Red
HOME0	HOM0	Green	HOME4	HOM4	Green
OT+0	OT0+	Red	OT+4	OT4+	Red
OT-0	OT0-	Red	OT-4	OT4-	Red
SRDY0	SRDY0	Red	SRDY4	SRDY4	Red
SERVO1	SVON1	Red	SERVO5	SVON5	Red
HOME1	HOM1	Green	HOME5	HOM5	Green
OT+1	OT1+	Red	OT+5	OT5+	Red
OT-1	OT1-	Red	OT-5	OT5-	Red
SRDY1	SRDY1	Red	SRDY5	SRDY5	Red

SERVO2	SVON2	Red	SERVO6	SVON6	Red
HOME2	HOM2	Green	HOME6	HOM6	Green
OT+2	OT2+	Red	OT+6	OT6+	Red
OT-2	OT2-	Red	OT-6	OT6-	Red
SRDY2	SRDY2	Red	SRDY6	SRDY6	Red
SERVO3	SVON3	Red	SERVO7	SVON7	Red
HOME3	HOM3	Green	HOME7	HOM7	Green
OT+3	OT3+	Red	OT+7	OT7+	Red
OT-3	OT3-	Red	OT-7	OT7-	Red
SRDY3	SRDY3	Red	SRDY7	SRDY7	Red
ESTOP	ESTP	Red	PRDY	PRDY	Red

(2) Description of the indicators:

POWER: The red light, when on, indicates that the external +24 V power input is in normal operation.

HOMn (n = 0~7): The green light, when on, indicates that the HOME sensor for the nth axis is activated.

OTn+ (n = 0~7): The red light, when on, indicates that the positive over-travel sensor for the nth axis is activated.

OTn- (n = 0~7): The red light, when on, indicates that the negative over-travel sensor for the nth axis is activated.

SVONn (n = 0~7): The red light, when on, indicates that the Servo On signal of the nth axis has already been output from the motion control platform.

SRDYn (n = 0~7): The red light, when off, indicates that the Servo Ready signal of the nth axis is output.

PRDY: The light, when on, indicates that the Position Ready signal has already been from the motion control platform.

ESTOP: The light, when on, indicates that no ESTOP event has occurred, and that the motion control platform is in normal operation. When the light is off, indicating that an ESTOP event has occurred, the motion control platform is the state of Emergency Stop.

Revision History

Date	Version	Contents of Revision
2012/12/06	V.1.0.2	First Release
2013/11/04	V.1.1.0	Basic Installation Procedure of the System was modified, and mechanical dimensions were marked. Sections 2.3.5, 2.3.6, and 2.3.7 were added.
2016/07/04	V.1.2.0	Correction of version contents and update of drawings