Connecting to the PAK-A Series

⚠CAUTION • When using the PIA4800 series to control the PAK-A series applied through the J1 terminal, do not use the remote control functions other than the remote sensing (pins 4 and 6 of the J1 terminal) or the master slave parallel operation function (pin 17 of the J1 terminal). Otherwise, it may cause malfunctions to the PAK-A series.

NOTE

- If the control board OP01-PIA is to be used for control operation, the PAK-A series requires the factory-optional interface card IF01-PAK-A. If your PAK-A series is not provided with the card, contact your Kikusui distributor/agent.
- The PAK-A series cannot be controlled with the OP02-PIA.

1. Control Parameters

Two different method (PAK-1 and PAK-2) can be used for connection to the PAK-A series, depending on the control parameters.

The “PAK-1”uses the OP01-PIA combined with the shunt unit, SH series.

The “PAK-2” uses the OP01-PIA.

The following parameters can be controlled.

- Output voltage setting
- Output current setting
- Output voltage readback
- Output current readback (PAK-1: Accurscy 0.3 % of full scale, PAK-2 : Accurscy 1.5 % of full scale)
- Overvoltage protection setting
- Output ON/OFF
- Power switch OFF
- Remote/local switching
- Power switch OFF monitoring
- C.V mode monitoring
- C.C mode monitoring
- Output ON/OFF monitoring
- Overvoltage protection startup monitoring
- Overheat protection startup monitoring

2. PAK-1 Connections

The application of the SH series (PAK-1 connections) allows readback of more accurate current values (Accuracy of current monitoring: 0.3 % of full scale)than values in PAK-2 connections.

To connect the OP01-PIA to the SH series, use the flat cable accompanying the OP01-PIA. To connect the PAK-A series to the SH series, use the flat cable accompanying the SH series.

For details, see the operation manual for the SH series.

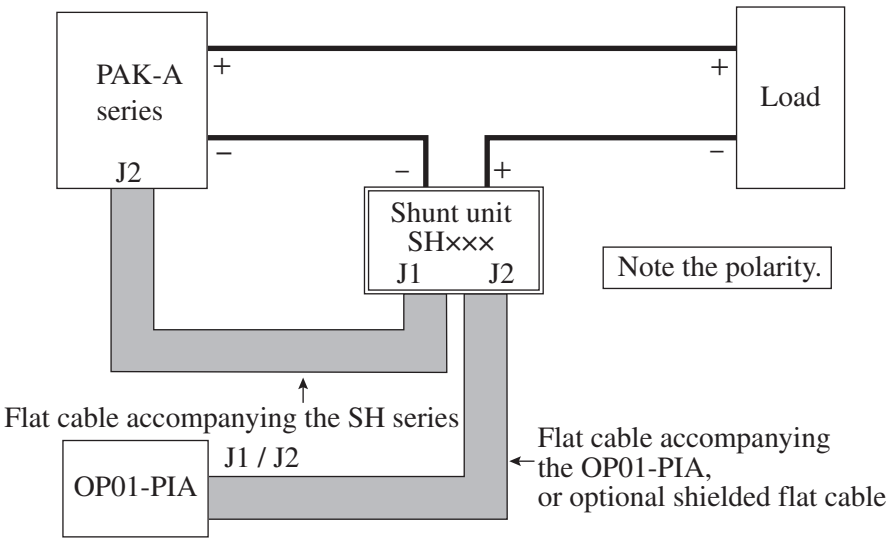

Fig.1 PAK-1 connections

3. PAK-2 Connections

The accuracy of the output current readback for the PAK-2 connection is 1.5% of full scale.

Using a SH series (with PAK-1 connection) allows higher accuracy of the output current readback (0.3% of full scale).

Using the flat cable accompanying the OP01-PIA, directly connect the OP01-PIA to the PAK-A series.

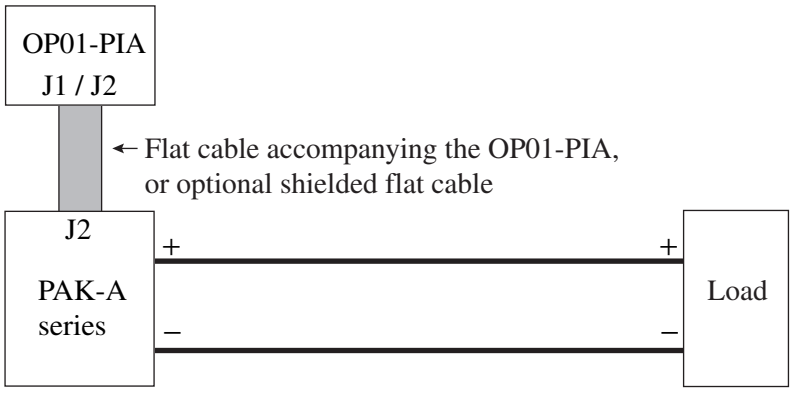

Fig.2 PAK-2 connections

4. Preparation for Starting Control Operation

Settings on the PAK-A Series

Before starting the operation, set the position of switches S1 (on the rear panel) and S2 to S8 (on the top cover) of the PAK-A to the following status respectively.

Table 1　　Switches on the PAK-A series unit

SW No.	Display	Switch location	Remark
S1	1	ON	Set 1, 2, and 3 to the GPIB control mode by turning them ON.
	2	ON	
	3	ON	
	4	ON or OFF	Normally ON. To activate the OUTPUT switch on the panel, turn OFF.
	5	—	Not used
S2	REMOTE SENSING	ON or OFF	Normally OFF. To perform remote sensing, turn ON.
S3	O.V.P CONTROL	REMOTE or LOCAL	With OP01-PIA, REMOTE. To perform remote sensing or use OP02-PIA, shift to LOCAL.
S4	PARALLEL OPERATION	MASTR	Set to the master unit.
S5	C.C REMOTE	EIN	Set to remote control by voltage.
S6		—	Not used
S7	C.V REMOTE	EIN	Set to remote control by voltage.
S8		—	Not used

Setting and checking PAK-A Model ID

The newest version of ID list can be downloaded from download service of Kikusui website (http://www.kikusui.co.jp/en/download/).

Table 2 ID list

ID No	Model	Output-current setting range [V]	Output-current setting range [A]	SH series	Switch setting position on the control board[*1]	
					100/200[*2]	101/201[*2]
001	PAK6-60A	0-6.000	0-60.00	Special orders	H	L
002	PAK6-120A	0-6.000	0-120.00	Special orders	H	L
003	PAK6-160A	0-6.000	0-160.00	Special orders	H	L
004	PAK10-35A	0-10.000	0-35.000	SH50	H	L
005	PAK10-70A	0-10.000	0-70.00	Special orders	H	L
006	PAK10-100A	0-10.000	0-100.00	Special orders	H	L
007	PAK20-18A	0-20.000	0-18.000	SH50	H	L
008	PAK20-36A	0-20.000	0-36.000	SH50	H	L
009	PAK20-50A	0-20.000	0-50.00	SH50	H	L
010	PAK35-10A	0-35.000	0-10.000	SH10	H	L
011	PAK35-20A	0-35.000	0-20.000	SH50	H	L
012	PAK35-30A	0-35.000	0-30.000	SH50	H	L
013	PAK60-6A	0-60.00	0-6.000	SH10	H	L
014	PAK60-12A	0-60.00	0-12.000	Special orders	H	L
015	PAK60-18A	0-60.00	0-18.000	SH50	H	L

*1. The setting positions for the switch of OP01-PIA.
*2. The number "100" and "101" are applied for the switch of Channel 1, "200" and "201" are for the switch of Channel 2.

For the ID settings, see 3.4, “Configuration Software” of PIA4800 series operation manual.

Calibrating PAK-A

When a new Model ID has been set, be sure to perform calibration.

Calibration can be performed for three parameters: output voltage, output current, and OVP (overvoltage protection).

OVP calibration is based on the voltage calibration values. Therefore, OVP calibration should be performed following voltage calobration.

For the calibration procedure, see Chapter 3, “Calibration by Device Configuration” of PIA4800 series operation manual.

Checking PAK-A Operation

Following calibration, set a voltage via GPIB or RS232C to check the performance of the PAK-A.

Checking procedure (example)

By sending the message “NODE 1;CH 1;REM 1;VSET 12.0” to the PIA4800 series, confirm that the preset voltage for the PAK-A series is set at 12.0 V.

5. Commands

For the commands, see “Device Messages” of Connecting & Programming Guide.