

Connections to PAD-LA Series

1. Control Parameters

Four different methods (PAD-LA-1 through PAD-LA-4 connections) can be used to make connections to the PAD-LA series, depending on the control parameters.

The following parameters can be controlled.

Table 1 Control Parameters

✓ : Can be controlled No mark : Uncontrollable ✕ : Subject to certain conditions

| Connection | PAD-LA-1 | PAD-LA-2 | PAD-LA-3 | PAD-LA-4 |
|---|------------------------|-----------------|----------|----------|
| Control board | OP01-PIA ^{*1} | | | OP02-PIA |
| Peripheral option | TU02+SH | TU02 | — | — |
| Output voltage setting | ✓ | ✓ | ✓ | ✓ |
| Output current setting | ✓ | ✓ | ✓ | ✓ |
| Output voltage readback | ✓ | ✓ | | |
| Power switch OFF | ✕ ^{*2} | ✕ ^{*2} | | |
| Output current readback (accuracy 0.3 % of full scale) | ✓ | | | |
| Output ON/OFF | ✓ | ✓ | | ✓ |
| C.V mode monitoring | ✕ ^{*2} | ✕ ^{*2} | | |
| C.C mode monitoring | ✕ ^{*2} | ✕ ^{*2} | | |
| Alarm monitoring ^{*3} | ✕ ^{*2} | ✕ ^{*2} | | |

*1. OP01-PIA cannot control models with a rated output voltage exceeding 500 V.

*2. Installation by us of a DIN connector is required (some types are not supported)

*3. Monitors the activation of the overvoltage protection circuit, overheat protection circuit, voltage detection circuit, and overcurrent protection circuit.

2. PAD-LA-1

When the OP01-PIA and the terminal unit TU02-PIA are used together with the shunt-unit SH series. OP01-PIA cannot control models with a rated output voltage exceeding 500 V.

To perform C.C mode monitoring, C.V mode monitoring, or alarm monitoring, a modification by installing a DIN connector on the PAD-LA series is necessary. For details, contact your Kikusui distributor/agent.

The application of the SH series allows readback of accurate current values (with an accuracy of 0.3 % of full scale). To connect the OP01-PIA to the SH series, use the flat cable accompanying the OP01-PIA. To connect the SH series to the TU02-PIA, use the flat cable accompanying the SH series.

To connect the TU02-PIA to the PAD-LA series, use the cable accompanying the TU02-PIA. For the connection procedure, see the operation manual for each device.

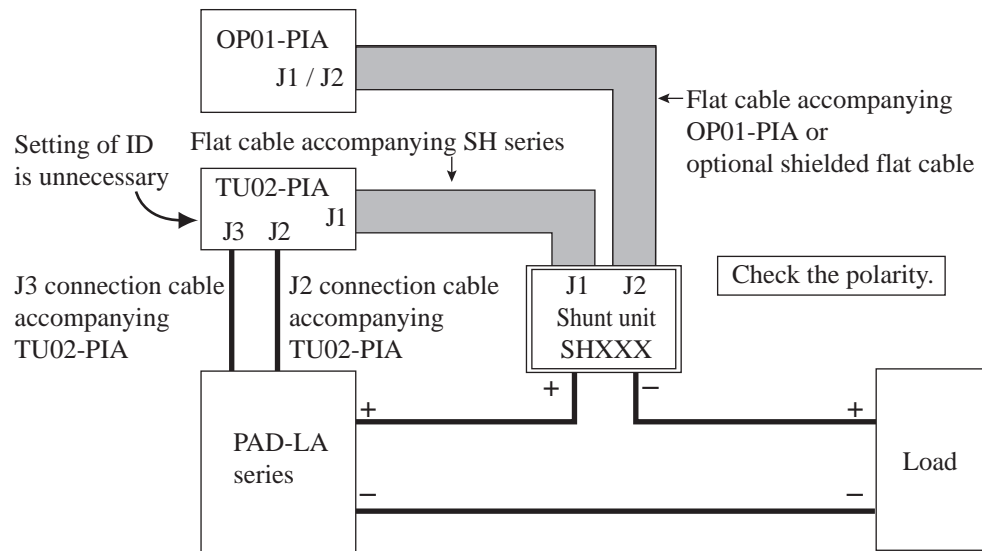


Fig.1 PAD-LA-1 connections



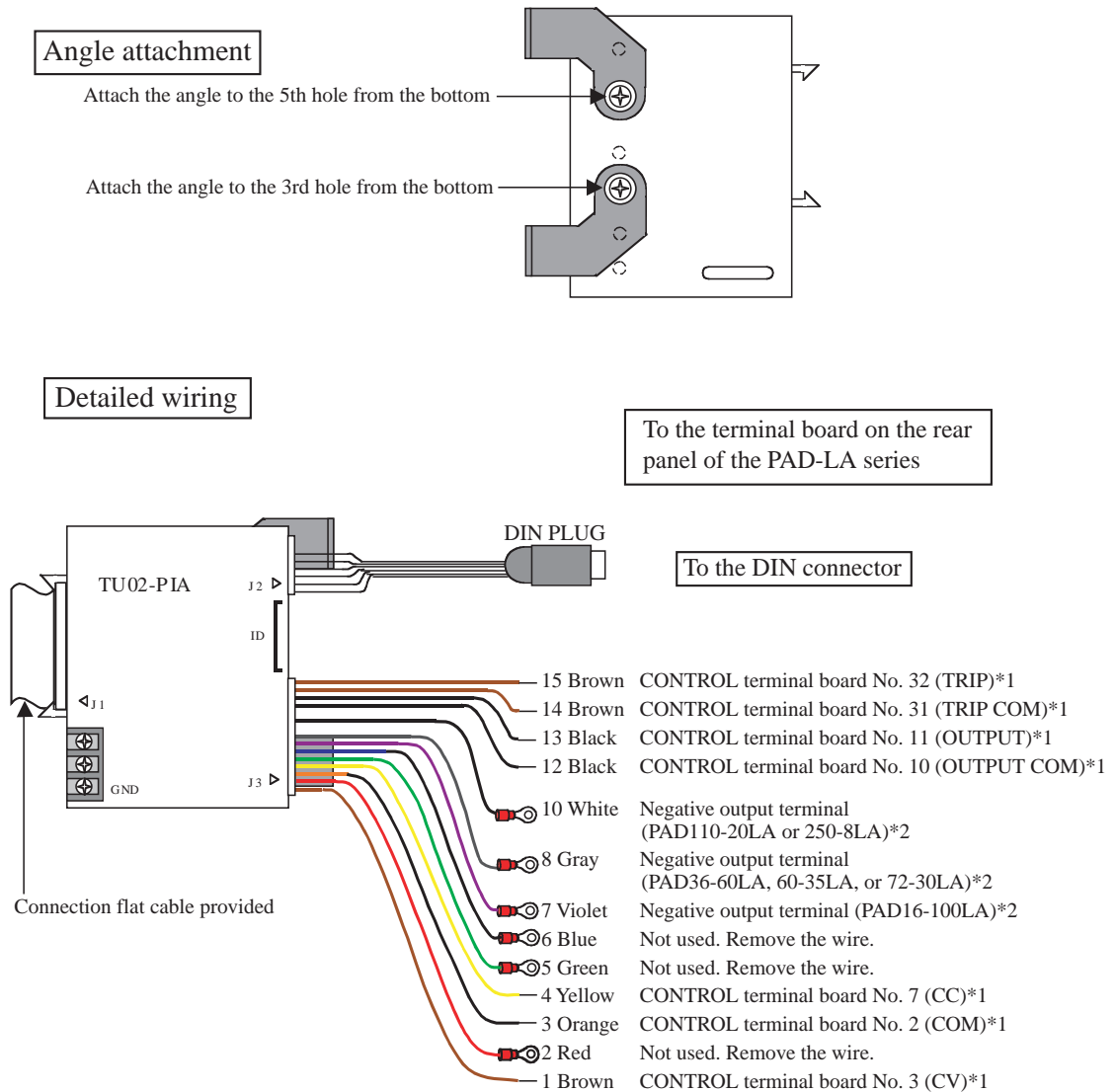


Fig.2 TU02-PIA connections

NOTE

- *1 Since the J3 Wire Kit that comes with the TU02-PIA has crimp terminals at the tip of the wires, cut the crimp terminals off from the wires that are to be connected to the control terminal of the PAD-LA. Then, strip 9 mm of the covering and attach the wires.
- *2 One of the wires 7, 8, and 10 of the J3 Wire Kit is used depending on the model. Remove the wires for the models that are not applicable. In addition, replace the applicable wire with the extension cable for PAN-A with M4 crimped terminal that comes with the TU02-PIA.

3. PAD-LA-2

When the OP01-PIA and the terminal unit TU02-PIA are used. OP01-PIA cannot control models with a rated output voltage exceeding 500 V.

To perform C.C mode monitoring, C.V mode monitoring, or alarm monitoring, a modification by installing a DIN connector on the PAD-LA series is necessary. For details, contact your Kikusui distributor/agent. To connect the OP01-PIA to the TU02-PIA, use the flat cable accompanying the OP01-PIA. To connect the TU02-PIA to the PAD-LA series, use the connection cable accompanying the TU02-PIA. For the connection procedure, see the operation manual for each device.

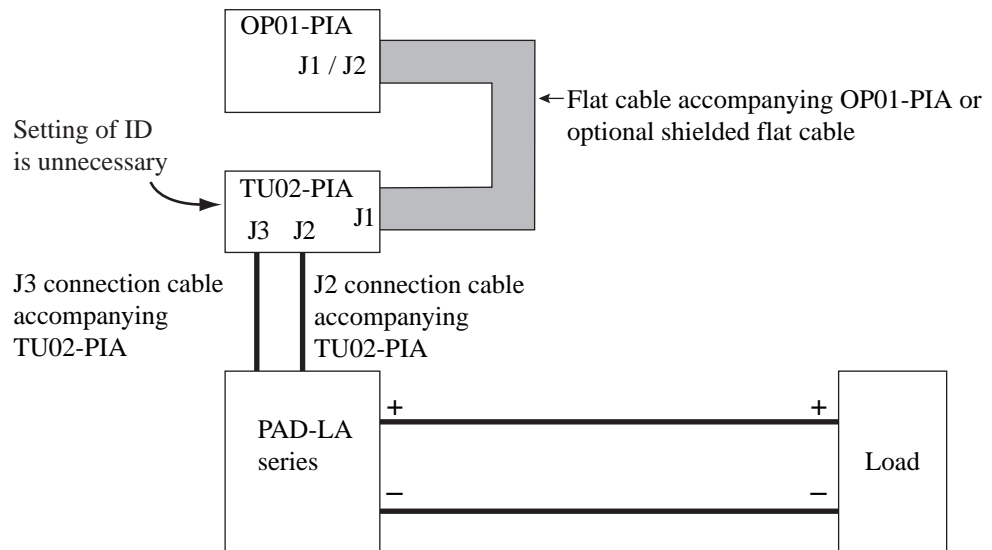


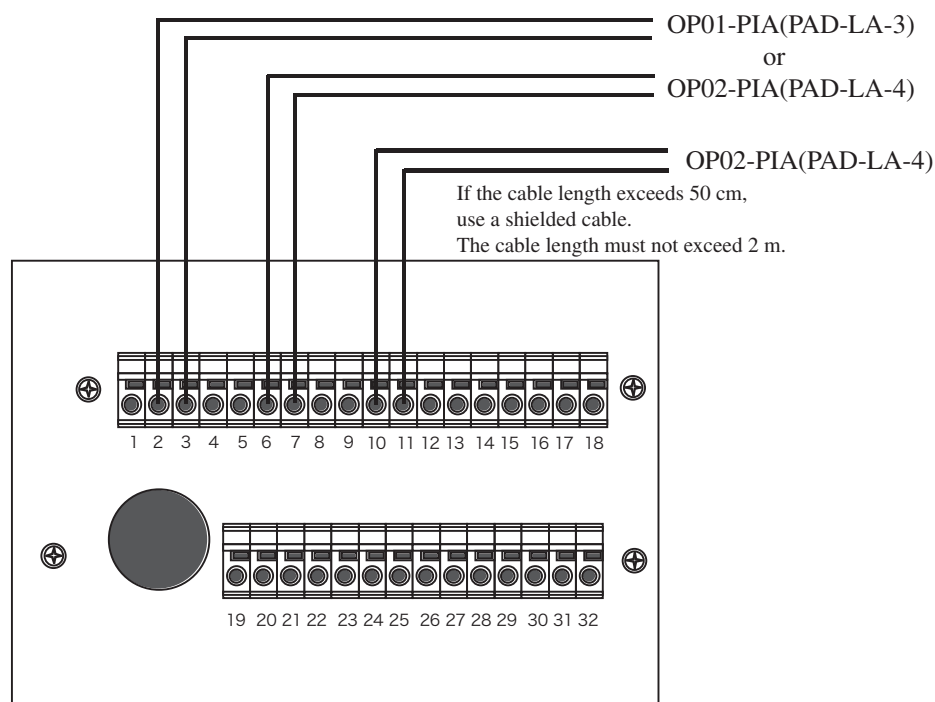
Fig.3 PAD-LA-2 connections

4. PAD-LA-3/PAD-LA-4

When the OP01-PIA or OP02-PIA is used. OP01-PIA cannot control models with a rated output voltage exceeding 500 V.

In PAD-LA-3 connections, connect J1/J2 on the OP01-PIA to the PAD-LA series (on the rear of the control terminal board) in accordance with the pin layout shown below, see Chapter 8, “OP01-PIA” of PIA4800 series operation manual.

In PAD-LA-4 connections, connect CH1/CH2 on the OP02-PIA to the PAD-LA series (on the rear of the control terminal board) in accordance with the pin layout shown below, see Chapter 9, “OP02-PIA” of PIA4800 series operation manual.



PAD-LA series TYPE III
On the rear of the control terminal board

Fig.4 PAD-LA-3/PAD-LA-4 connections

Table 2 Pin layout for PAD-LA-3 and PAD-LA-4

| PAD-LA series CONTROL terminal board | OP01-PIA J1/J2 | OP02-PIA CH1/CH2 | Remarks |
|--------------------------------------|----------------|------------------|-----------------------------------|
| Terminal 3 | 4 | A | Output voltage control |
| Terminal 2 | 2 | B | Common for output voltage common |
| Terminal 7 | 5 | C | Output current control |
| Terminal 6 | 2 | D | Common for output current control |
| Terminal 11 | ? | E | Output ON/OFF |
| Terminal 10 | ? | F | Common for output ON/OFF |

5. Preparation for Starting Control

Settings on PAD-LA unit

Before starting control operation, make the following settings:

- 1 Set switches S1 and S2 on the front control panel to the upper position (remote settings for C.C and C.V).
- 2 Turn the output setting knob clockwise until it stops.

NOTE

- To prevent the output setting knob from rotating, use of a guard cap is recommended. Note that the calibration value changes if the output setting knob is turned following calibration.

Setting and checking PAD-LA 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 3 ID list

| ID No. | Model | Output-current setting range [V] | Output-current setting range [A] | SH series | Switch setting position on ^{*1} the control board | |
|--------|-------------|----------------------------------|----------------------------------|----------------|--|--------------------------|
| | | | | | 100/200 ^{*2} | 101/201 ^{*2,*3} |
| 140 | PAD16-100LA | 0-16.000 | 0-100.00 | Special orders | H | L/NC |
| 141 | PAD36-60LA | 0-36.000 | 0-60.00 | Special orders | H | L/NC |
| 146 | PAD36-100LA | 0-36.000 | 0-100.00 | Special orders | H | L/NC |
| 142 | PAD60-35LA | 0-60.00 | 0-35.000 | SH50 | H | L/NC |
| 147 | PAD60-60LA | 0-60.00 | 0-60.00 | Special orders | H | L/NC |
| 143 | PAD72-30LA | 0-72.00 | 0-30.000 | SH50 | H | L/NC |
| 144 | PAD110-20LA | 0-110.00 | 0-20.000 | SH50 | H | L/NC |
| 149 | PAD110-32LA | 0-110.00 | 0-32.000 | SH50 | H | L/NC |
| 145 | PAD250-8LA | 0-250.00 | 0-8.000 | SH10 | H | L/NC |
| 150 | PAD250-15LA | 0-250.00 | 0-15.000 | SH50 | H | L/NC |

*1. The setting positions for the switch of OP01-PIA or OP02-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.

*3. The setting positions of "L" is used for OP01-PIA, "NC" is used for OP02-PIA.

Set the OFF-MODE switch of the remote control setup switch to A.

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

Calibrating the PAD-LA series

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

Calibration can be performed for two parameters: output voltage and output current.

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

Checking PAD-LA performance

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

Checking procedure (example)

By sending the message “NODE 1;CH 1;VSET 12.00” to the PIA4800 series, make sure the preset voltage for the PAD-LA series is set at 12.00 V.

6. Commands

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

