

Connection to the PWR Series

NOTE

- Version 2.20 or later is required for the PIA4800 series Power Supply Controller. If you are using an earlier version, you need to update the firmware. For details, contact your Kikusui agent.
You can check the PIA4800 series version using *IDN?. For detail, see “Device Messages”
-

1. Control Parameters

The following parameters can be controlled.

- Output voltage setting
- Output current setting
- Output voltage readback
- Output current readback
- Output power readback
- Overvoltage protection setting
- Overcurrent protection setting
- Output ON/OFF
- POWER switch OFF
- C.V mode monitoring
- C.C mode monitoring
- Power limit operation monitoring
- Output ON/OFF monitoring
- Overvoltage protection start-up monitoring
- Overcurrent protection start-up monitoring
- Overpower protection start-up monitoring
- Overheat monitoring

2. Connecting to the PWR series

The PWR and power supply controller are connected via a TP-BUS. Up to 32 devices can be connected to the TP-BUS.

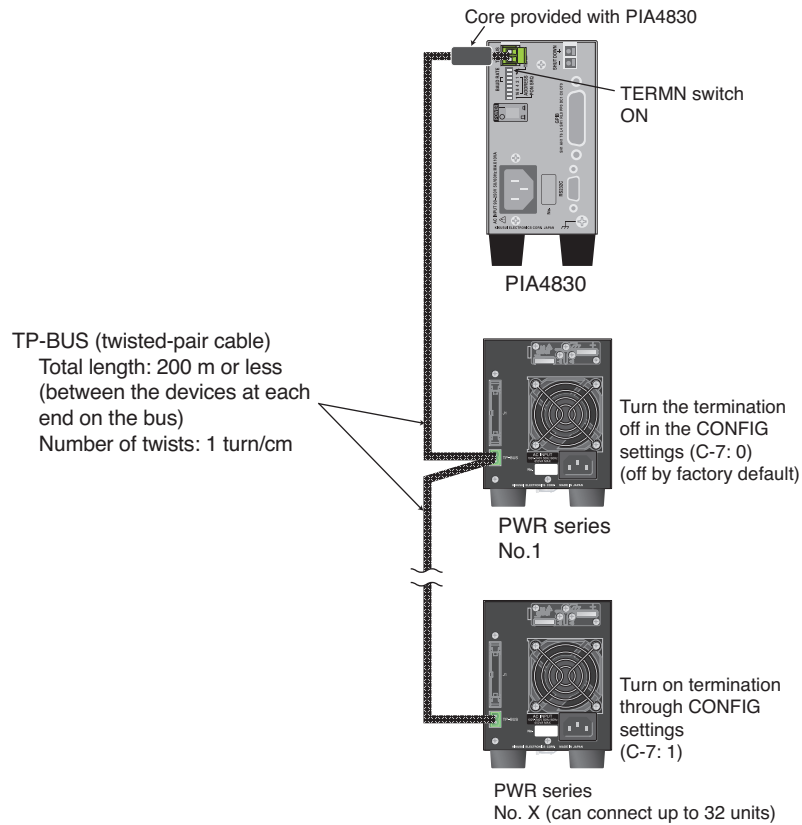


Fig.1 TP-BUS connection
(connection example with the PIA4830)

The TP-BUS is connected in a chain by connecting twisted-pair cables to the TP-BUS connectors (plug.) The total length of a twisted-pair cable, when connected to the series, is 200 m or less.

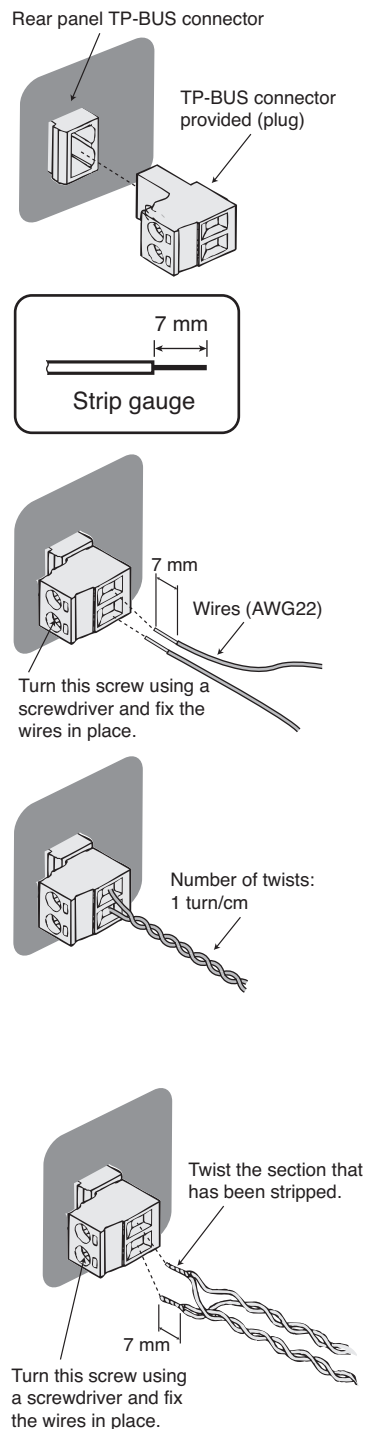
In master-slave series/parallel operation, connect the TP-BUS only to the master unit. Remote control does not work if the TP-BUS is connected to both the master and slave units. The controller handles the PWRs connected in parallel/series as a single master unit.

■ Wires and tools required for the connection

- Wires
stranded: 0.32 mm² (AWG22) , within 200 m or
stranded: 0.20 mm² (AWG24) , within 20 m
- Flat-blade screwdriver (axis diameter: $\phi 3$, end width: 2.6 mm)
- Wire stripper suitable for the wires described above.

Wiring the TP-BUS connector

When using the PIA4850, the PIA4850 should be connected at the end of the bus.



1 Check that the POWER switch of all devices to be connected are turned off. Check that the USB cable is not connected on the PIA4850.

2 Insert the TP-BUS connector (plug) provided to the TP-BUS connector on the rear panel on all units.

This facilitates the wire connection work.

3 Use a wire stripper to remove the covering from the wires.

Remove 7 mm of the covering. Use the strip gauge that is indicated on the top panel of the unit or the strip gauge of below.

4 Connect the wire to the TP-BUS connector at the end of the bus.

Use the screw driver to turn the connector screw and fix the wires in place.

5 Twist the wires (1 turn/cm).

6 Check that the wires do not come loose, that the wires are not shorted, and that the conducting sections of the wires are not touching the chassis.

Communication is not possible if the wires are shorted. If the wires are touching the chassis, the PWR or other devices that are connected may burn.

7 If there is any device in the middle of the bus, twist the stripped portion of new wires on the other side of connected wires and connect the wires to the TP-BUS connector.

Twist the wires (1 turn/cm).

Check that the wires do not come loose, that the wires are not shorted, and that the conducting sections of the wires are not touching the chassis.

Likewise, connect the wires to all of the devices in the middle of the bus.

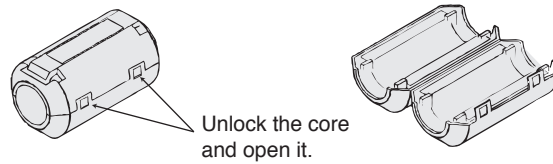
TP-BUS has no polarity. You do not have to match the polarities between units.

8 Connect the other side of connected wire to the TP-BUS connector at the end of the bus.

Installing a TP-BUS core

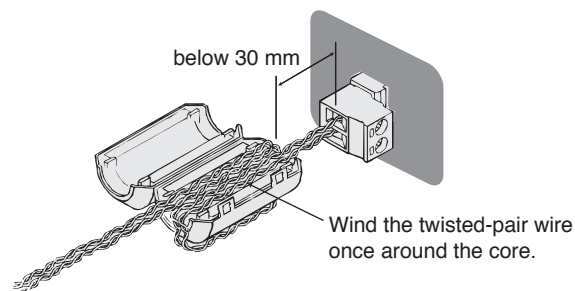
Attach a TP-BUS core to the power supply controller (excluding the PIA4850)

- 1 Unlock the core (provided with PIA4800 series) and open it.



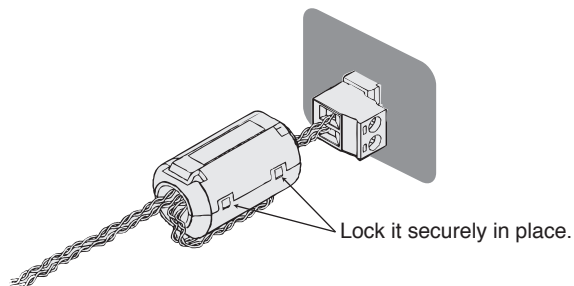
- 2 Wind the twisted-pair wire which is connected to the power supply controller for once around on the half core.

Keep the distance between the core and the connector below 30 mm.



- 3 Close the core. Avoid catching the wire on the core.

Lock it securely in place.



3. Preparations for Starting Control

Settings on the Termination (TERMIN)

Turn on the termination (TERMN) on the devices at each end of the bus. The PIA4850 is always turned on. Wire the PIA4850 at the end of the bus.

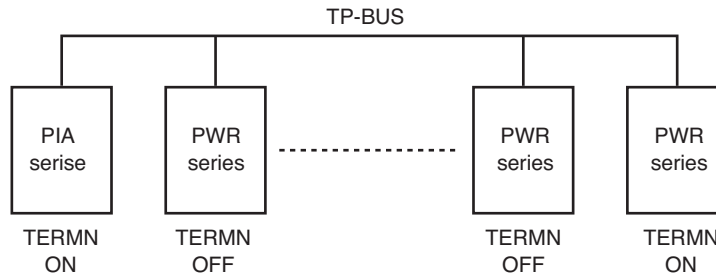
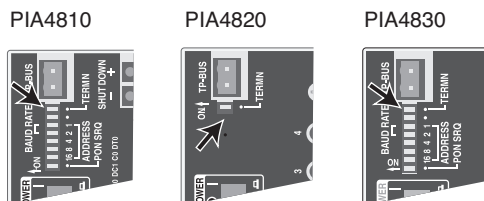


Fig.2 Termination settings

If the termination is not set properly, communications become unstable and erroneous operation may result.

For detail of CONFIG setting, see the operation manual of the PWR series.

- 1 Set the CV control source and CC control source of all PWRs that are to be connected to panel control (C-1: 0 and C-2: 0) in the CONFIG settings.
The factory default setting is panel control.
- 2 Turn on the "TERMN" of the dip switch (on the rear panel) on the power supply controller (excluding the PIA4850).
When the switch is in left position, it is turned on.



- 3 Turn on the termination (C-7: 1) in the CONFIG settings on the PWR at the end of the bus.
- 4 Turn off the termination (C-7: 0) in the CONFIG settings on the PWRs other than those at the end of the bus.
By factory default, the termination setting is off.

Setting of the NODE ADDRESS

Assign a node address to each device on the TP-BUS for the power supply controller to identify the devices that are connected on the TP-BUS. Set the node address not to be the same on the TP-BUS line.

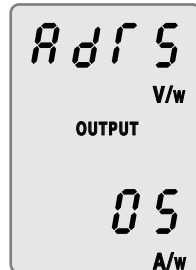


Fig.3 Display of node address "05"

- 1 Turn the POWER switch of PWR series on.
- 2 Check that the OUTPUT switch is turned the OUTPUT off.
If the output is turned on, press the OUTPUT switch to turn off the output.
- 3 Press the ADDRESS switch.
The voltmeter shows "Adrs", and the ammeter shows the value.
- 4 Turn the setting knob to set the desired node address (05 to 36).
Do not connect devices having the same node address on the same TP-BUS.
- 5 Turn the POWER switch off.
The node address is assigned when the POWER switch is turned back on. Allow at least 10 seconds between power cycles. If you turn on the POWER switch at a short interval, the node address setting will be incomplete.
If you exit from the node address setting before turning off the POWER switch, the setting is cancelled.
- 6 Likewise, set the node address of all PWR series that are to be connected.

4. Commands

For the commands, see "Device Messages" of Connecting & Programming guide.