

# Connection to the PIA4820

The PIA4810/PIA4820/PIA4850 can be used to connect using a twisted-pair cable TP-BUS to up to three expansion units of the PIA4820.

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.

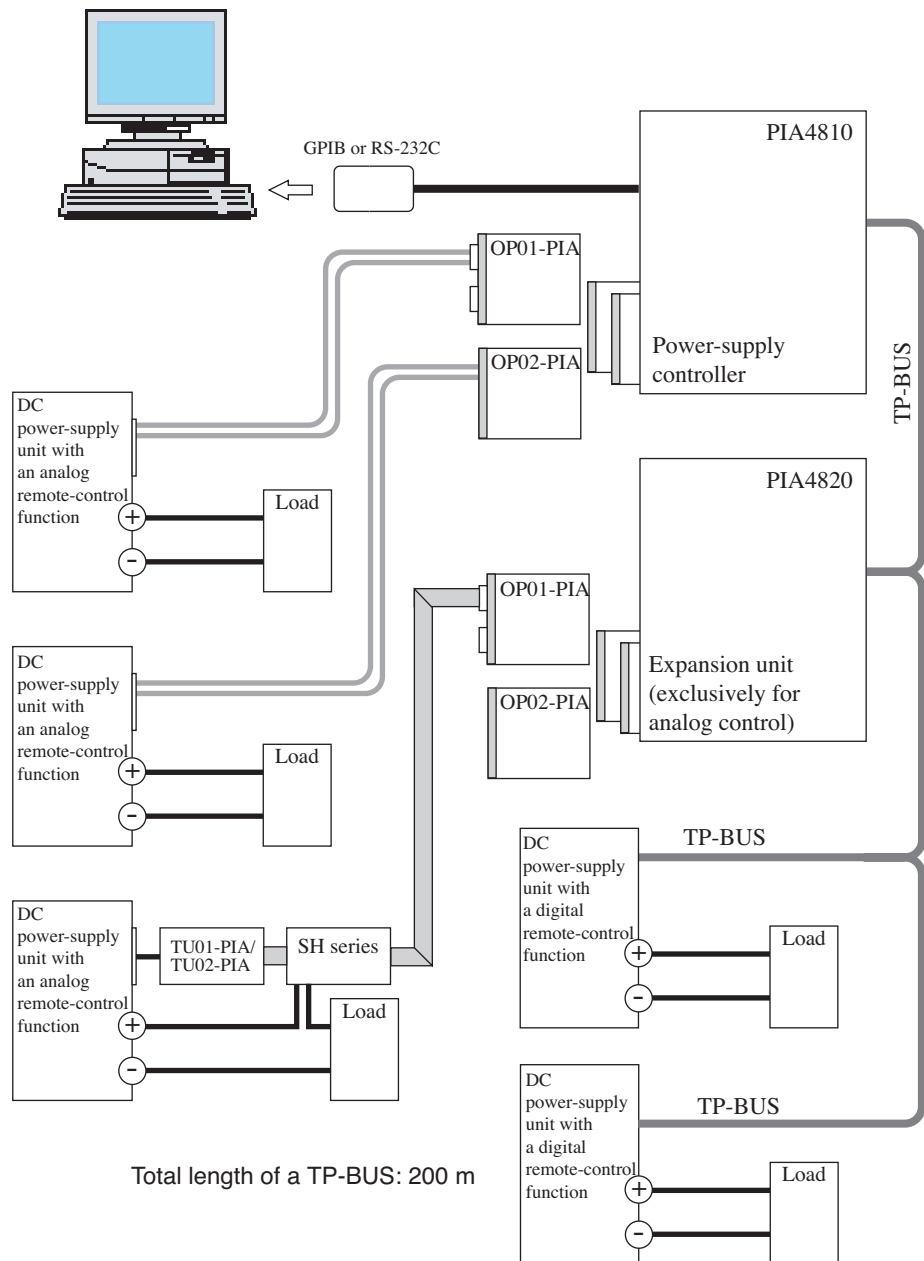


Fig. 1 System Configuration (example with the PIA4810)

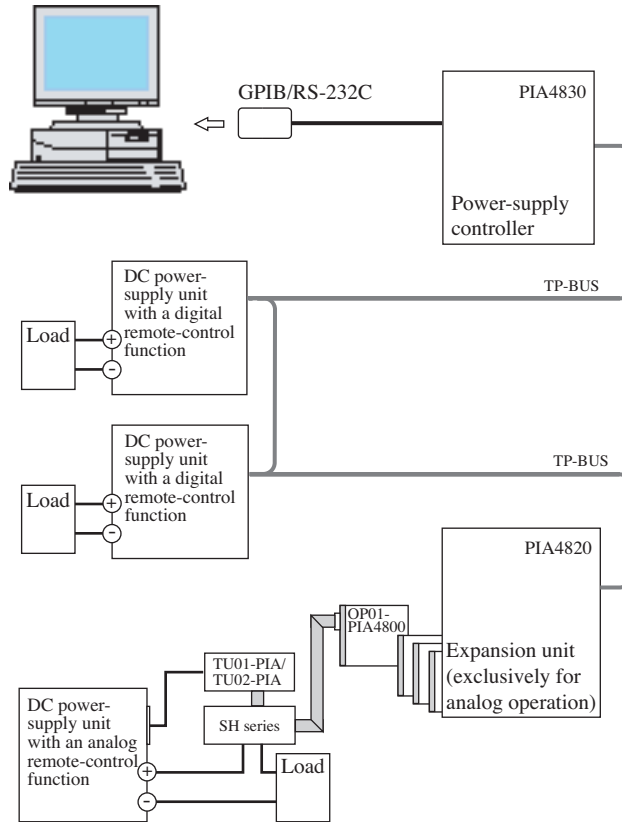


Fig.2 System Configuration (example with the PIA4830)

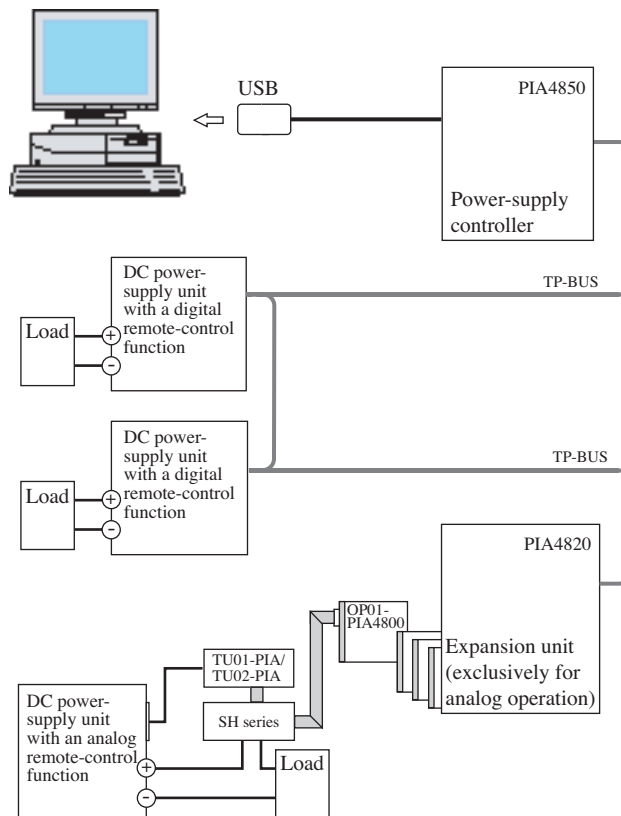


Fig.3 System Configuration (example with the PIA4850)



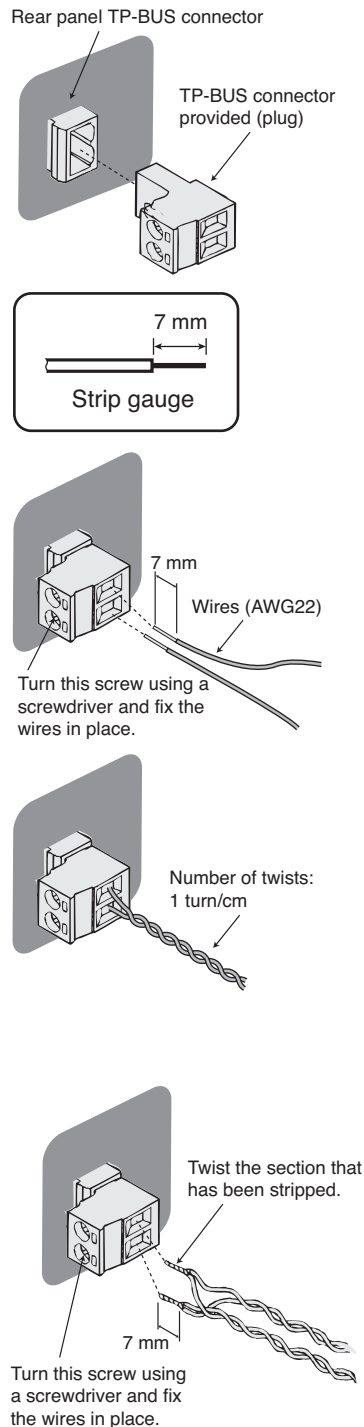
---

## ■ Wires and tools required for the connection

- Wires
  - stranded: 0.32 mm<sup>2</sup> (AWG22) , within 200 m or
  - stranded: 0.20 mm<sup>2</sup> (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.

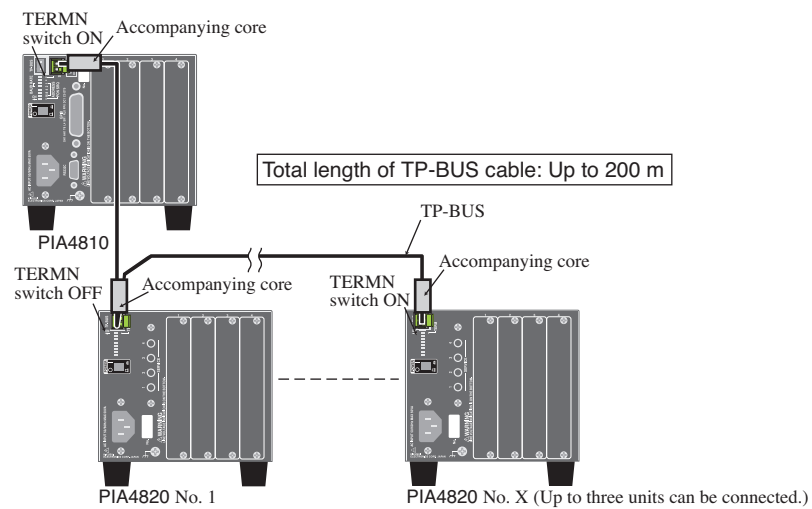
Likewise, connect the wires to all of the devices in the middle of the bus.

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

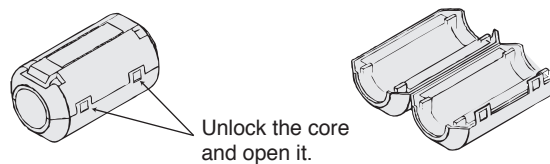
8 Connect the other side of connected wire to the TP-BUS connector at the end of the bus.

## Installing a TP-BUS core

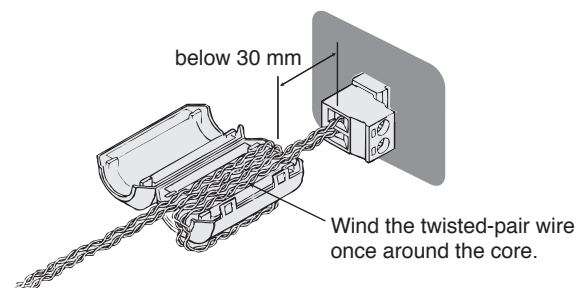
Attach a TP-BUS core to the PIA4800 series (excluding the PIA4850).



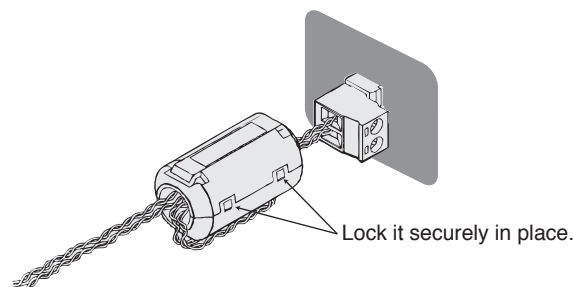
- 1 Unlock the core and open it.



- 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.



- 4 Likewise, attach a TP-BUS core to all of the PIA4820s.

## 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.

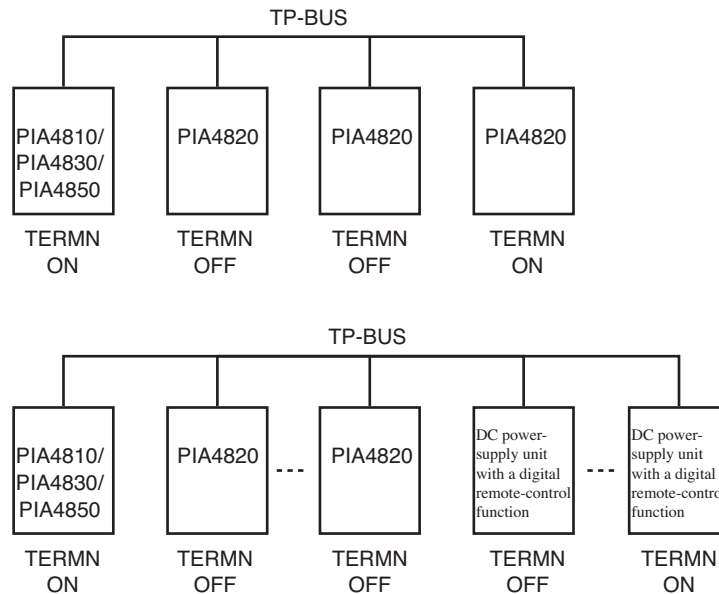


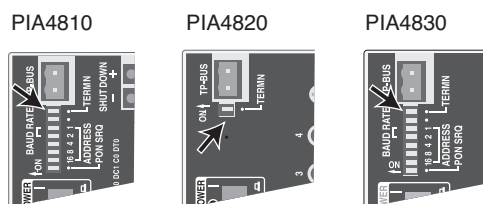
Fig.4 Termination settings

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

- Turn on the "TERMN" of the dip switch (on the rear panel) on the devices at the end of the bus.

When the switch is in left position, it is turned on.

For detail of Setting of termination for DC power supplies, see "Connection of Power supply (PDF)" of "Connecting & Programming Guide."



- Turn on the "TERMN" of the dip switch (on the rear panel) on the devices in the middle of the bus.

When the switch is in right position, it is turned on.

For detail of Setting of termination for DC power supplies, see "Connection of Power supply (PDF)" of "Connecting & Programming Guide."

---

## 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.

Setting of the NODE address, using the software accompanying the PIA4810.

For details, see “3.4 Configuration Software” of PIA4810/PIA4820 operation manual

## Calibration by Device Configuration

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

Calibration can be performed for three parameters: OVP (PAK-A series only), output voltage and output current.

For the calibration procedure, see Chapter 3, “Calibration by Device Configuration” of PIA4810/PIA4820 operation manual.