Connection to the PAM Series

NOTE
- To control remotely the PAM series by the PC, the optional TP-BUS interface in required. For details on the options, contact your Kikusui agent or distributor.
- Version 2.10 or later is required for the PIA4800 series. 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"
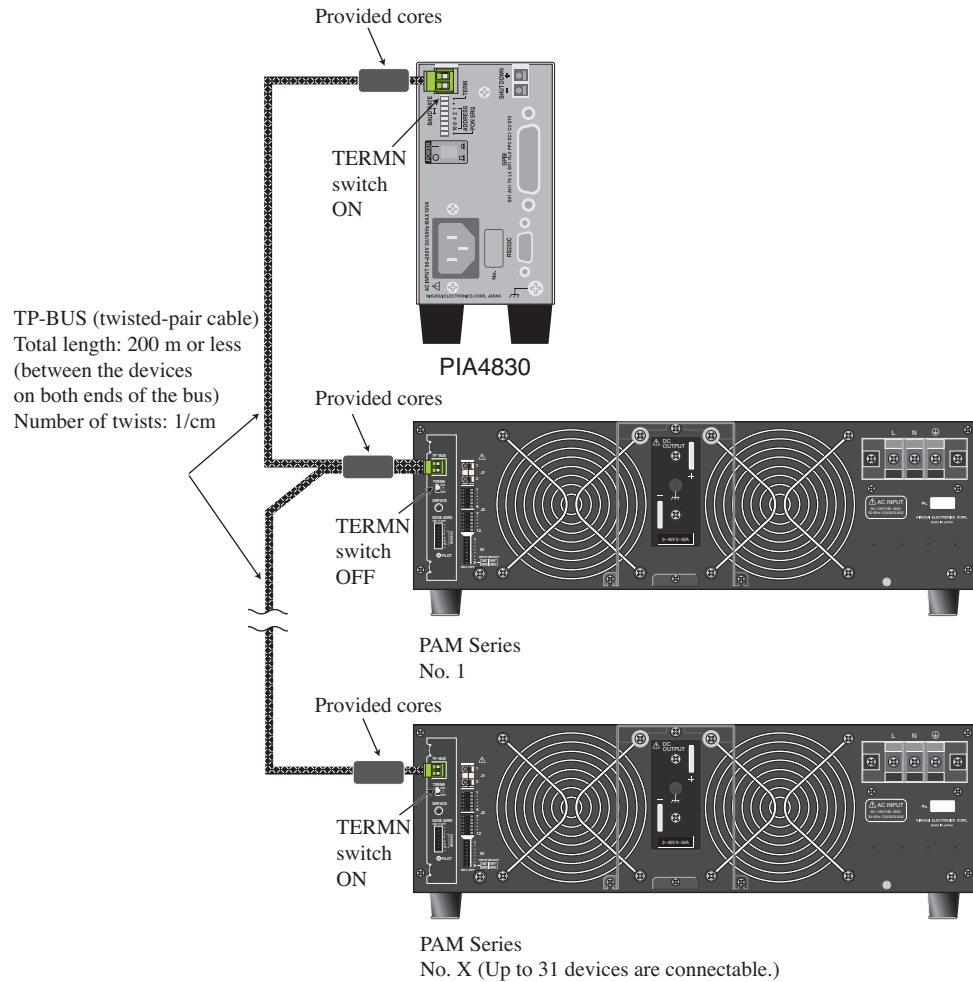
1. Control Parameters

The following parameters can be controlled.

- Output voltage setting
- Output current setting
- Output voltage readback
- Output current readback
- Output ON/OFF
- C.V mode monitoring
- C.C mode monitoring
- Output ON/OFF monitoring
- Overvoltage protection start-up monitoring
- Overheat monitoring

2. Connecting to the PAM series

The PAM and power supply controller are connected via a TP-BUS. Up to 31 devices can be connected to the TP-BUS.

Provided cores

TERMN
switch
ON

TP-BUS (twisted-pair cable)
Total length: 200 m or less
(between the devices
on both ends of the bus)
Number of twists: 1/cm

PIA4830

Provided cores

TERMN
switch
OFF

PAM Series
No. 1

Provided cores

TERMN
switch
ON

PAM Series
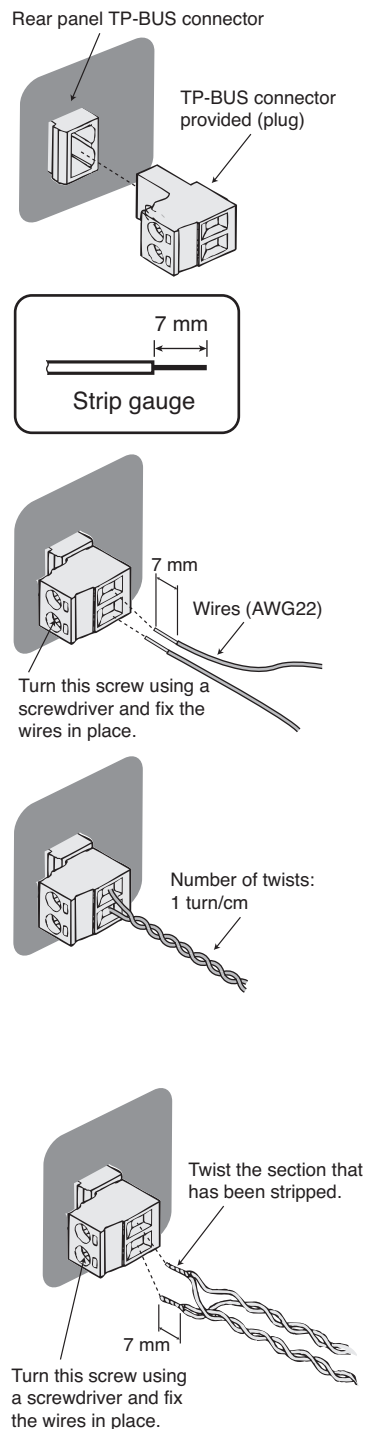No. X (Up to 31 devices are connectable.)

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.

■ Wires and tools required for the connection

- Wires

  stranded: 0.32 mm^2 (AWG22) , within 200 m or

  stranded: 0.20 mm^2 (AWG24) , within 20 m

- Flat-blade screwdriver (axis diameter: ϕ 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.

Rear panel TP-BUS connector

TP-BUS connector provided (plug)

7 mm

Strip gauge

7 mm

Wires (AWG22)

Turn this screw using a screwdriver and fix the wires in place.

Number of twists: 1 turn/cm

Twist the section that has been stripped.

7 mm

Turn this screw using a screwdriver and fix the wires in place.

1 Check that the POWER switch of all deveces 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.
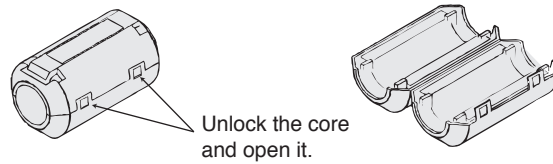
TP-BUS has no polarity. You do not have to match the polarities between units.

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 the core on the twisted-pair wire for all the devices (excluding the PIA4850).

1 Unlock the core and open it.

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.

below 30 mm

Wind the twisted-pair wire once around the core.
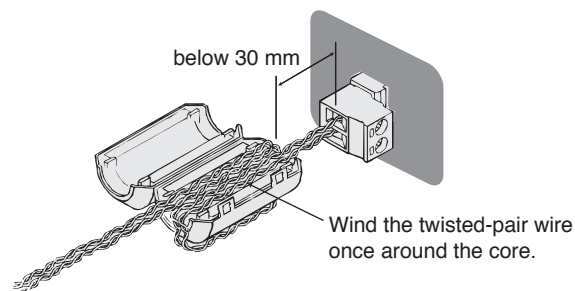
3 Close the core. Avoid catching the wire on the core.
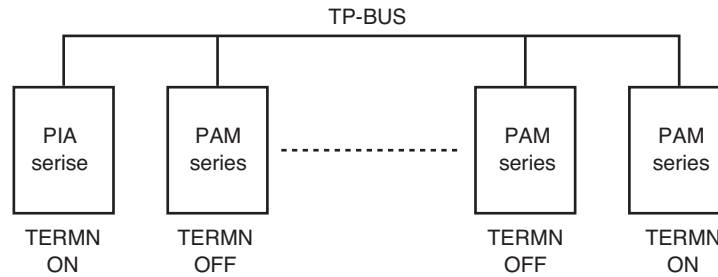
Lock it securely in place.

Lock it securely in place.
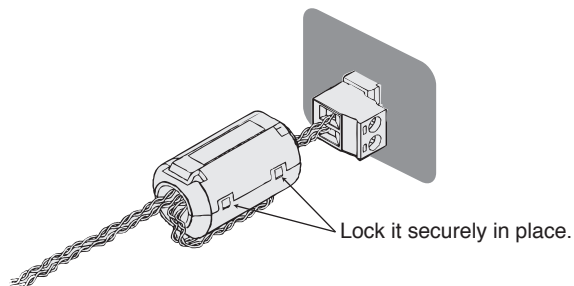
4 Likewise, attach a TP-BUS core to all of the PAM series.

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.


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

1   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.
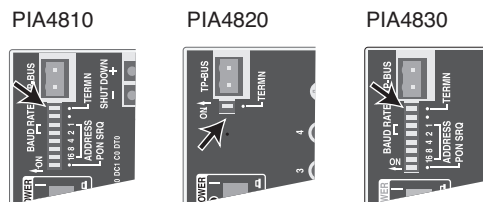
2   Turn on the "TERMN" of the dip switch (on the rear panel) on the PAM series at the end of the bus.

When the switch is in upper position, it is turned on.
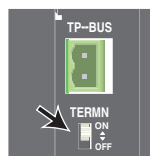
3   Turn on the "TERMN" of the dip switch (on the rear panel) on the PAM series in the middle of the bus.

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

Setting of the NODE ADRESS

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.
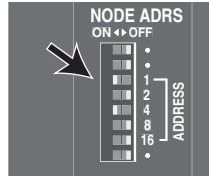
Example of node address "5"

1 Check that the POWER switch of PAM series is turned off.

If the POWER is turned on, use the POWER switch to turn off the power

2 Set the node address (0 to 31) by the NODE ADRS switch on the TP-BUS interface.

Do not connect devices having the same node address on the same TP-BUS.

The GPIB address is fixed by the number which is total of adding the numbers appeared on the right side of the "ON" positioned switches.

3 Likewise, set the node address of all PAM seriess that are to be connected.

4. Commands

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