Connection to the PMR Series

NOTE

- Version 2.00 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 ON/OFF
- C.C mode monitoring (On each Channel)
- Overheat monitoring

2. Connecting to the PMR series

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

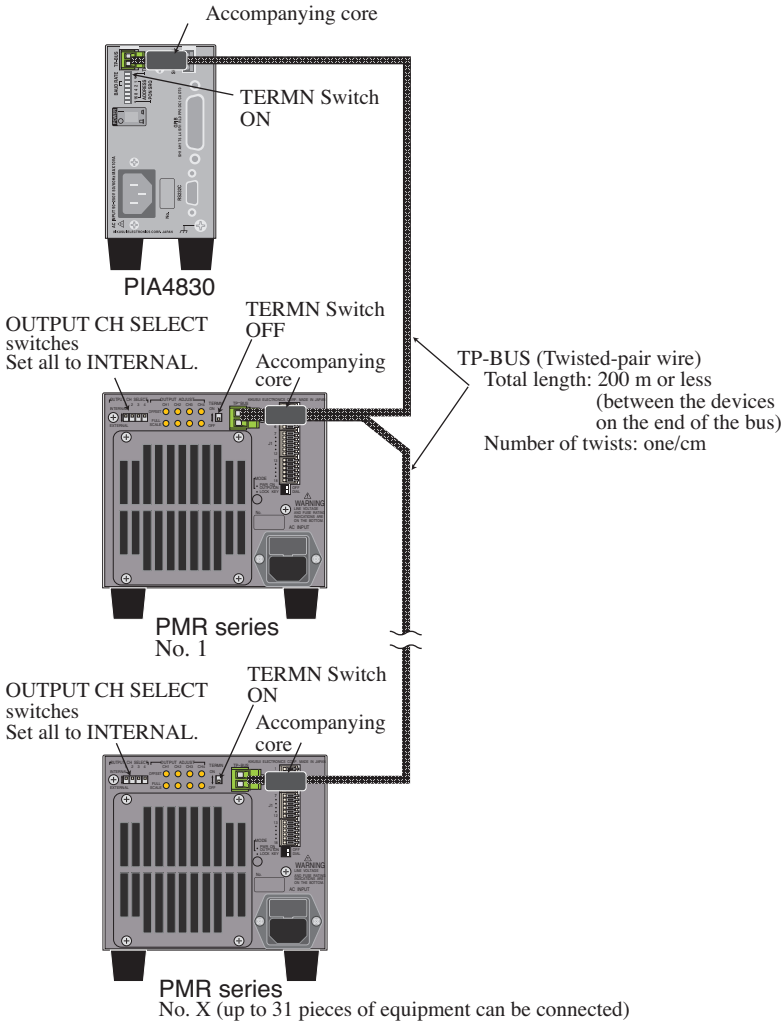


Fig.1 TP-BUS connection
(connection example with the PIA4830)

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.

■ Wires and tools required for the connection

- Wires

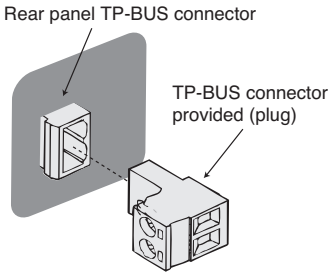
  stranded: 0.32 mm^2 (AWG22) , within 200 m or

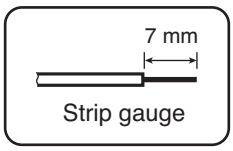
  stranded: 0.20 mm^2 (AWG24) , within 20 m

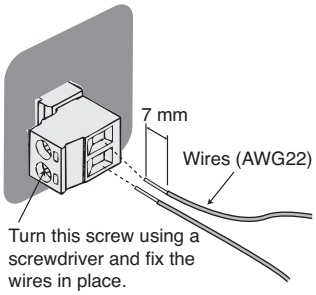
- Flat-blade screwdriver (axis diameter: ϕ 3, end width: 2.6 mm)
- Wire stripper suitable for the wires described above.

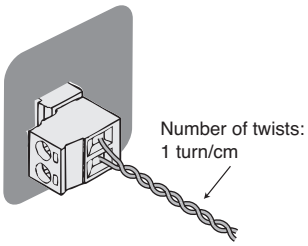
Wiring the TP-BUS connector

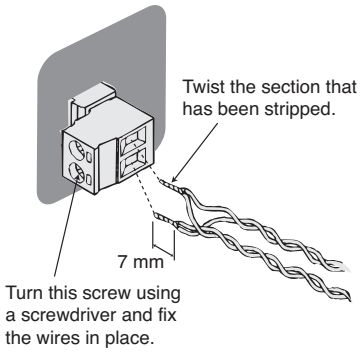
When using the PIA4850, the PIA4850 should be connected at the end of the bus.









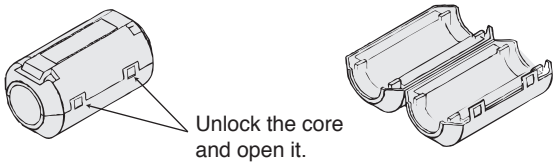


1. Check that the POWER switch of all deveces to be connected are turned off. Check that the USB cable is not connected on the PIA4850.
2. Insert the TP-BUS connector (plug) provided to the TP-BUS connector on the rear panel on all units.
   This facilitates the wire connection work.
3. Use a wire stripper 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

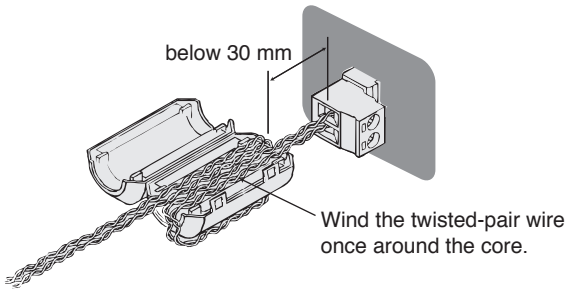
Attach the core on the twisted-pair wire for all the devices (excluding the PIA4850).

1 Unlock the core and open it.



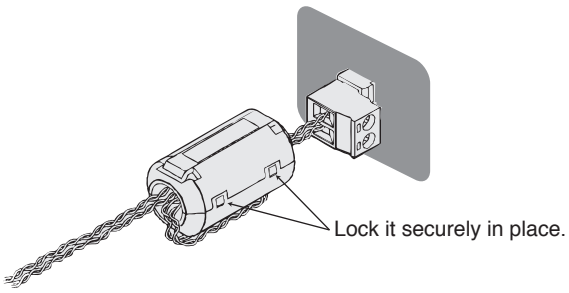
2 Wind the twisted-pair wire which is connected to the power supply controller for once around on the half core.

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 PMR 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.

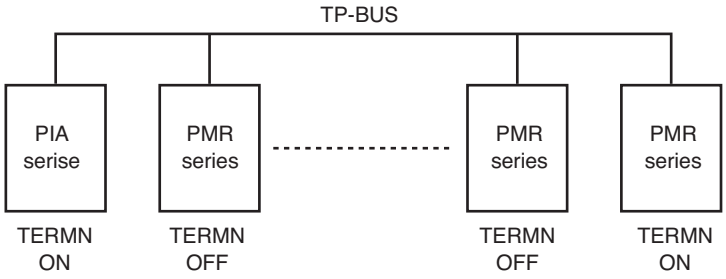


Fig.2 Termination settings

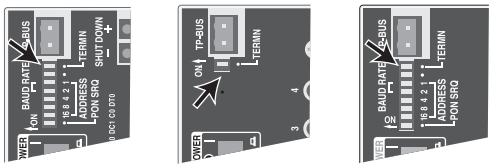
If the termination is not set properly, communications become unstable and erroneous operation may result.

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

1 Turn on the "TERMN" of the dip switch (on the rear panel) on the power supply controller (excluding the PIA4850).

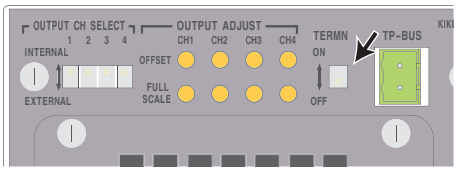
When the switch is in left position, it is turned on.

PIA4810 PIA4820 PIA4830



2 Turn on the "TERMN" of the dip switch (on the rear panel) on the PMR 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 PMR series in the middle of the bus.

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

Setting of the PMR unit

Setting of the OUTPUT CH SELECT

Set all OUTPUT CH SELECT switches (on the rear panel) of all PMR series to INTERNAL (make voltage setting on the panel.)

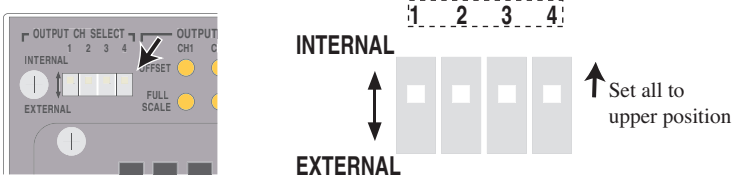


Fig.3 Setting of the OUTPUT CH ELECT switch

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.4 Display of node address “05”

1. Turn the POWER switch of PMR 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 NODE ADRS switch.

   The voltmeter shows “Adrs”, and the ammeter shows the value.
4. Turn the dial to set the desired node address (05 to 35).

   Do not connect devices having the same node address on the same TP-BUS.
5. Turn the POWER switch off.

   If you exit from the node address setting before turning off the POWER switch, the setting is cancelled.

6. Wait for more than 3 seconds, then turn on the POWER switch again.

   This is to set the node address.

   The display shown “-----” appears after a display of the ROM version. If you turn on the POWER switch at a short interval, the node address setting will be incomplete.

   When the NODE ADRS switch is pressed, you can confirm the change of node address.

   When the node address is changed, all the output setting value will be set to 0.

7. Likewise, set the node address of all PMR seriess that are to be connected.

■ If “-----” is not to appear

If the same node address exists on the TP-BUS line, "-----" is not to appear on the display because of that the node address is not changed. To set a new node address, check the node addresses on the TP-BUS, and set a number that is different from those values.

■ If an Err 08 is on display

Either the POWER switch has been turned off while a node address is being changed, or the TP-BUS is short-circuited. Check the TP-BUS connections.

1. Turn the POWER switch off.
2. Disconnect the connecting wire from the TP-BUS connector.
3. Reset the node address.

   Set the different address number from the node address appeard on the display.
4. Connect the wire to the TP-BUS connector.

■ If an Err 16 is on display

More than one device with identical node addresses are on the TP-BUS.

1. Turn the POWER switch off.
2. Disconnect the connecting wire from the TP-BUS connector.
3. Confirm the node address on the TP-BUS, then reset the node address not to be the same on the TP-BUS.
4. Connect the wire to the TP-BUS connector.

4. Commands

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