

Pt100 Thermo-sensor Input Module for USB2.0

PTI-4(USB)



* Specifications, color and design of the products are subject to change without notice.

The PTI-4(USB) is a compact, ready-to-use module for collecting resistance and temperature data from a USB-compatible platinum resistance temperature detector, Pt100 or JPt100.

This module can be used in various operating environments as it provides discontinuity detection and digital filtering features. It can be used by PC with USB interface and is for note PC best.

When using it on a desktop computer, you can perform simple connection without the need for opening the host cover. Being connected with USB port, the USB module can be setup simply. In addition, it can be used immediately owing to the supplied Windows development environment and Utility.

The communication in Full Speed (12Mbps) is added to this USB module, and which is compatible with High Speed (480Mbps).

Features

Supporting a variety of temperature measurement applications

Providing the averaging and alarm output functions as well as resistance/temperature data acquisition for temperature measurement, thereby supporting various application. Serviceable with either a three-wire or four-wire platinum resistance temperature detector.

Resistance/temperature data acquisition

Capable of acquiring resistance data from a platinum resistance temperature detector connected. While the output from the platinum resistance temperature detector is nonlinear with respect to temperature changes, the module internally linearizes the input to obtain data as temperature values.

Averaging by count

Capable of averaging data input after input data by sampling count.

Averaging by time

Capable of averaging input data by

Alarm output

Capable of sensing an alarm output upon detection of a temperature outside the set temperature range. The module can be programmed to take action only when the alarm output changes. The alarm output can be set for each channel.

The alarm output range can be set with four levels: higher high limit, high lower limit, lower high limit, and lower low limit.

Digital Filter

Incorporating a digital filter for eliminating noise from the commercial power supply (50/60 Hz).

Note that the digital filter can be used only at a conversion speed of 150 ms.

Discontinuity detection

Capable of detecting the discontinuity in a resistance temperature detector or conductor per channel.

Isolated from external device

Using an opto-coupler to isolate the CPU in the module from the external device, preventing the external device from electrically affecting the host computer directly via the USB port.

Easy to wire

The system incorporates a screw connector plug that allows you to easily attach and detach wires without using any special tools.

Easy-to-install design

The system, in the module itself, incorporates a 35mm DIN rail mounting mechanism as a standard item, so it can be attached and detached easily.

Easy to extend input channel

By adding expansion modules Option, the number of input channels can be increased.

It adopts the unique configuration of stack connecting which permits a simple, compact system configuration.

PTI-4(USB) + PTI-4(FIT)GY x 5

(Up to 24 input channels can be extended)

Easy-to-develop-application Sample Program

Visual Basic, Visual C++, Delphi and C++ Builder sample programs have been prepared.

Functions convenient for developing generic applications, such as the functions that acquire the list of the current available USB modules, are prepared.

Convenient utility for debugging

Diagnostic Program

When the problem occurred, it will be helpful to solving the problem.

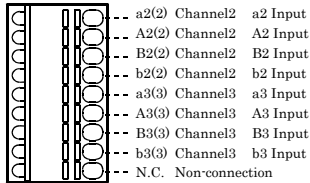
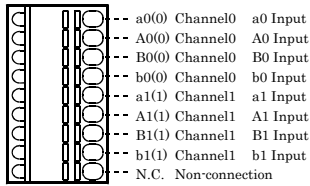
Packing List

USB module [PTI-4(USB)]...1
 First step guide ...1
 CD-ROM *1 [API-USBP(WDM)]...1
 Interface connector (plugs)
 FK-MC0.5/9-ST-2.5 (mounted on the module)...2
 AC adapter (1.5m)...1
 AC cable (1.5m)...1
 USB cable (1.8m)...1
 Rubber feet...4
 Magnet...2

*1 The CD-ROM contains the driver software and User's Guide.

Signal Layout

The Module can be connected to an external device using a 9-pin connector that is provided on the Module face.

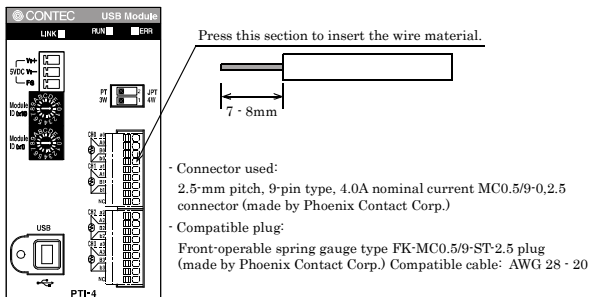


Connection Method

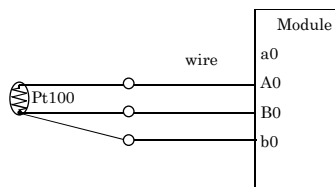
When connecting the Module to an external device, use the attached connector plug. When wiring the Module, strip off approximately 7 - 8 mm of the covering for the cable, and insert the bare wire by pressing the orange button on the connector plug. Releasing the orange button after the wire is inserted fixes the cable. Applicable wire size is AWG 28 - 20.

CAUTION

Removing the connector plug by grasping the cable can break the wire.



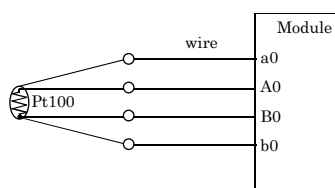
Connect a three-wire platinum resistance temperature detector.



Points

As conductor resistance affects measured values in a three-wire connection, use three conductors of the same material, wire form, and length so that they have the same electrical resistance.

Connect a four-wire platinum resistance temperature detector.



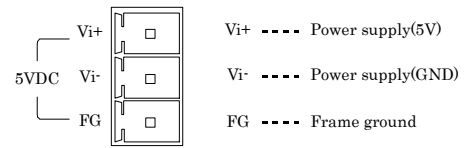
Points

As conductor resistance has no effect on measured values in a four-wire connection, use four conductors for connection when precise measurement is required.

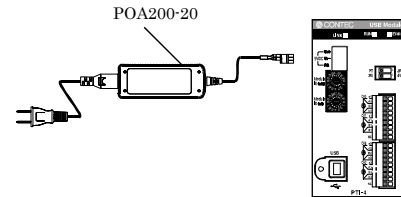
Connecting an External Power Supply

This module must be connected with an external power supply (in a self-powered state).

Connect the external power supply to the +5 VDC input terminal.

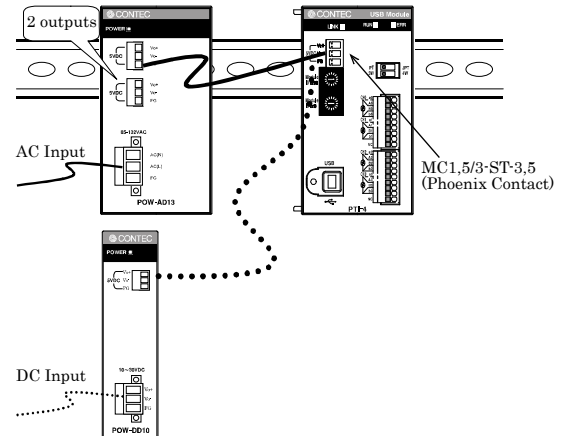


When using the supplied AC adapter [POA200-20], please connect directly to the input terminals.



In addition, besides the Ac adapter, the power supplies (Option) installable on DIN rail are provided. You can choose by the environment and purpose.

Category	Model	Input	Output	External dimensions(mm)	DIN rail
AC adapter	POA200-20 (Bundled)	90 - 264VAC	5.0VDC±5% 2.0A(Max.)	40.0(W)x105.0(D)x30.0(H) (exclusive of protrusions)	No
AC-DC power	POW-AD13GY	85 - 132VAC	5.0VDC±5% 3.0A(Max.)	52.4(W)x64.7(D)x94.0(H) (exclusive of protrusions)	Yes
AC-DC power	POW-AD22GY	85 - 265VAC	5.0VDC±5% 2.0A(Max.)	52.4(W)x64.7(D)x94.0(H) (exclusive of protrusions)	Yes
DC-DC power	POW-DD10GY	10 - 30VDC	5.0VDC±5% 3.0A(Max.)	25.2(W)x64.7(D)x94.0(H) (exclusive of protrusions)	Yes
DC-DC power	POW-DD43GY	30 - 50VDC	5.0VDC±5% 3.0A(Max.)	25.2(W)x64.7(D)x94.0(H) (exclusive of protrusions)	Yes



When using the power supply installable on DIN rail, please use the connector MC1,5/3-ST-3,5(Phoenix Contact).

Connecting method

To connect the external power supply and USB cable to the unit, take the steps below:

- (1) Connect the external power connector to supply power for the USB module.
- (2) Connect the USB module with computer using USB cable.

To remove the external power supply and USB cable from the unit, take the steps below:

- (1) Remove USB cable.
- (2) Remove external power connector, stop power supplying to the USB module

⚠ CAUTION

To use the AC adapter, connect it to the USB module first, then plug the AC adapter's connector into a wall outlet.

When the USB module is not used, leave the AC adapter unplugged

Continuously using the AC adapter heated affects its life.

Use the AC adapter not in a closed place but in a well-ventilated place not to be heated. The AC adapter heats up itself when loaded heavily. If the AC adapter is exposed to high temperature or used continuously, you should keep the load at about 80% of the maximum load (at 1.6 A for the POA200-20).

Connecting with Expansion Accessories

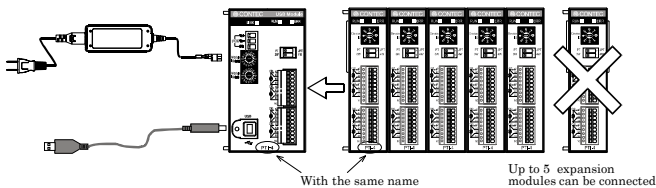
Even though your system has run out of temperature measurement input channels to connect external devices, purchasing another PTI-4(USB) module doubles the cost and installation space.

At the same time, adding channels is considered when designing this module, and additional module can be connected by the connector on module side, so that not only the cost but also the installation space are controlled.

Up to 5 modules PTI-4(FIT)GY can be connected when adding channels.

Combining the main module "PTI-4(USB)" with five additional modules "PTI-4(FIT)GY" allows up to 24 input channels for temperature measurement to be controlled via a single USB port.

Model	Output channel	Current consumption	Function
PTI-4(FIT)GY	4	+5VDC 500mA(Max.)	Expansion module for PTI-4(USB)



Points

Up to 5 modules can be connected.

If you add three or more expansion modules, the AC adapter cannot supply sufficient power. In that case, use another higher-capacity power supply instead.

Modules with different function from the USB module can