

## Pt100 Thermo-sensor Input Module for USB2.0 PTI-4(USB)



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

### 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.

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).

#### 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  
Disk \*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 Media contains the driver software and User's Guide.

## Specifications

Item		Specifications
Input section	Number of channel	4 channels
	Platinum resistance temperature detectors acceptable	Pt100(JIS C1604-1997, IEC 751 1983), JPt100(JIS C1604-1989)
	Wiring method	Three-wire or Four-wire
	Measurable temperature range	Pt100: -200 - 850°C JPt100: -200 - 510°C
	Precision	Operating temperature 0 - 50°C ±0.3°C *1 Operating temperature 15 - 35°C ±0.15°C *1
	Resolution	0.01°C
	Conversion rate	Select from 150ms / 40ms / 5ms per one channel
	Output current for temperature detection	12mA
	Isolation method	Between platinum resistance temperature detector input and power supply: Opto-coupler isolation Between platinum resistance temperature detector input channels: unisolation
Adjustment	Flash ROM writing count	100000 times (Max.)
Communication	USB transmission speed	2Mbps (full speed), 480Mbps (high speed) *2
	Current consumption	+5VDC 800mA(Max) *3
Others	Number of modules used at the same time	127 modules (Max) *4
	Use condition	0 - 50°C, 10 - 90%RH (No condensation)
	Physical dimensions (mm)	50.4(W)x64.7(D)x94.0(H) (exclusive of protrusions)
	Weight of the module itself	200g
	Module installation method	One-touch connection to 35mm DIN rails (standard connection mechanism provided in the system)
	Expansion module	PTI-4(FT)GY: 5modules (Max) , Current consumption/module: +5VDC 500m A (Max.)
	Compatible plug	FK-MC0.5/9-ST-2.5 (made by Phoenix Contact) 2.5mm-pitch nominal current: 4A (Max)
	Applicable wire	AWG28 - 20
Standard	Bundled AC adapter (POA200-20)	90 - 264VAC 5.0VDC±5% 2.0A (Max) Length of cable is about 1.5m. Length of AC cable is about 1.5m.
		VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive)

\*1 At a conversion speed of 150 ms

\*2 USB module executes API function by USB communication. The executing time of API function by USB communication is about several msec in practice (Depending on the contents handled by API function, it may be longer than that). The responding speed of USB module is based on the environment of the host PC being used.

\*3 Always use the supplied AC adapter or power supply unit (option).

\*4 The USB interface can accommodate up to 127 devices on the bus. As a USB hub itself is counted as one device, however, 127 USB modules cannot be connected.

## Support Software

## API Functions Library API-USBP(WDM) (Bundled)

It is the library software, and which supplies command of hardware produced by our company in the form of standard Win32 API function (DLL). Using programming languages supporting Win32API functions, such as Visual Basic and Visual C/C++ etc., you can develop high-speed application software with feature of hardware produced by our company.

In addition, you can verify the operation of hardware using Diagnostic programs.

It also supplies the up-to-date driver and download service for missing files.

Further details may be found in the help within supplied Media or the homepage of our company.

### Accessories (Option)

Input Module for Pt100 Thermo-sensor  
(Expansion module for PTI-4(USB)) : PTI-4(FIT)GY

AC adapter (input: 90 - 264VAC, output: 5VDC 2.0A) : POA200-20

AC-DC power supply unit  
(input: 85 - 132VAC, output: 5VDC 3.0A) : POW-AD13GY

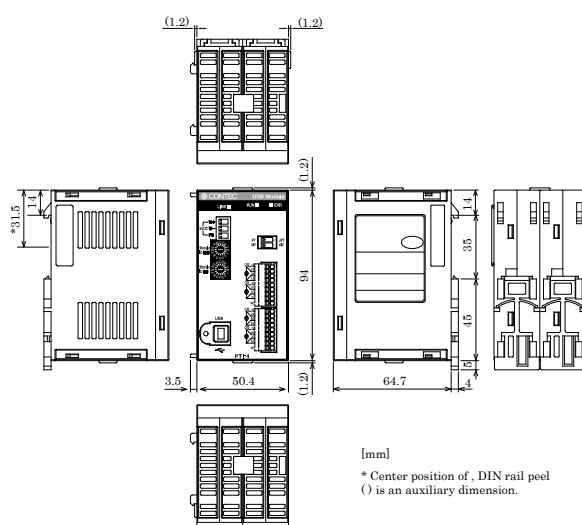
AC-DC power supply unit  
(input: 85 - 264VAC, output: 5VDC 2.0A) : POW-AD22GY

AC-DC power supply unit  
(input: 10 to 30VDC, output: 5VDC 3.0A) : POW-DD10GY

AC-DC power supply unit  
(input: 30 to 50VDC, output: 5VDC 3.0A) : POW-DD43GY

\* Further details of the accessories may be verified in the Web site of our company.

## Physical Dimensions



## Signal Layout

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

