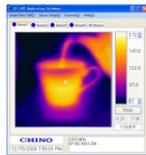


Introduction

Thank you for purchasing a compact thermal image sensor. This quick manual explains basic steps of easy operation and its settings. Please see the manual provided in the installation CD for detail explanation of each function on this product.



Before using

Please confirm the contents of packing. If something is missing, please contact your nearest distributor.

Names	Quantity
Thermal Image Sensor	1
Custom power/alarm output cable	1
Custom Network cable	1
Universal head	1
Lens cap	1
Connector cap	1
Mounting screw	1
Application software(CD)	
Instruction manuals (Sensor and Application software) (CD)	1
Quick manual (This manual)	1

Adobe Reader is required to read the manual included in the installation CD.

Safety precautions

- The safety precautions shown in this manual indicate the important contents about safety. Please be sure to understand and follow these precautions.
- In this manual, in order to use this product safely, precautions are described with the following indications and marks.

	Warning	This indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury.
	Caution	This indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or cause property damage.

[Safety precautions]

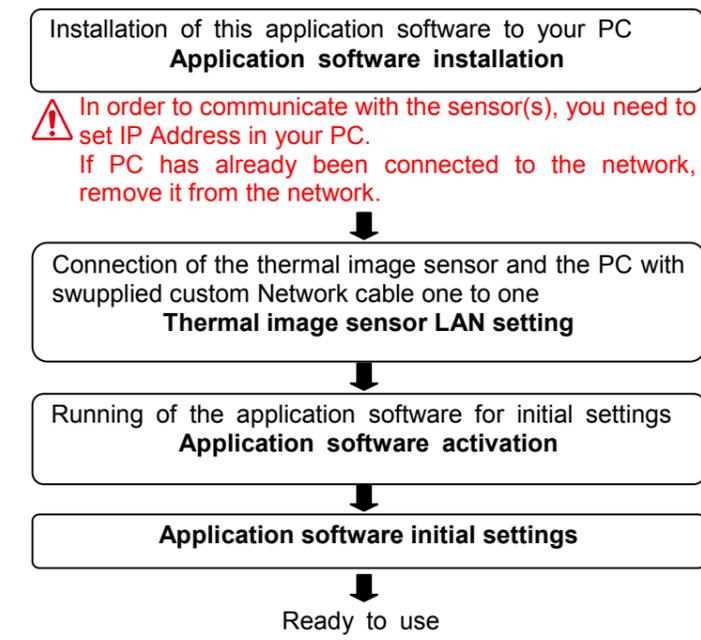
Warning

- Do not operate this product in a place where flammable gas or explosive gas exists. It is extremely dangerous to use this product under such environment.
- In order to prevent an electric shock, make sure that the power source is turned off before connecting any wiring.
- Stop using this product immediately, turn off the power source and contact to your nearest distributor if it is broken or there is smoke/abnormal odor from this product. Otherwise, it may cause fire.
- Do not repair or modify this product. If it is modified, operation of this product will not be guaranteed. It may also cause fire/electric shock.

Caution

- Avoid the use of this product in the following places.
 - A place where ambient temperature varies widely
 - A place where humidity is high
 - A place where rain/water is splashed
 - A place where there are dusts like sand or dirt
 - A place where it is subjected to exposed in scorching heat or direct sunlight
 - A place where it is subjected to radiation
 - A place where strong electric circuit exists beside this product
 - A place where there is any inductive interference
 - A place where there is mechanical vibration/shock

Preparation before using



Installation of application software

The following is the installation procedure of the application software. (The procedure is for Windows XP.)

1. Start your PC and launch Windows. Before this application software is installed, close all other applications that are running. If not, the installation may be affected from them.
2. Insert the CD with the CHINO application software. Setup Wizard should start automatically, if not, double-click the setup program in the CD to start.



Warning When the OS of your PC is Windows2000, Update Rollup 1 for SP4 and Internet Explorer (IE) 5.01 or later are required.

LAN settings of thermal image sensor

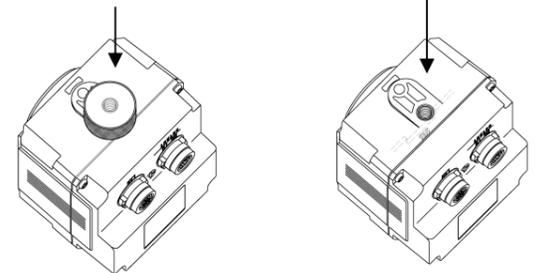
When the sensor is used first time, the LAN setting of the sensor is required.

1. Initialization of thermal image sensor

As received from factory, no initialization is required since all settings have been initialized. In case of an error, etc. at the LAN environment settings, the set values can be reset to the default values as shipped from factory by removing the mounting screw and then pushing the reset switch.

Turn the power on while pushing the initial switch for 1 second continuously. Resetting to the default values becomes effective (The violet monitor lamp flashes 2 times.) By re-power-on, the set values are reset to the default values at the shipment from factory. Usually do not push the initial switch.

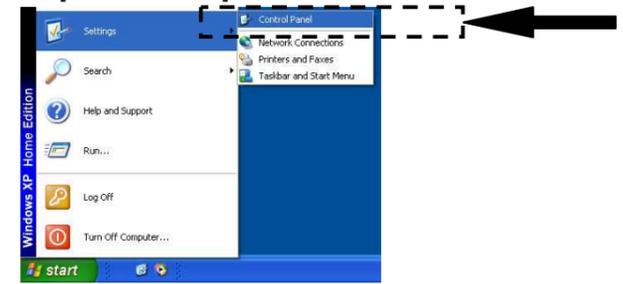
Remove the mounting screw. Reset switch (behind the screw)



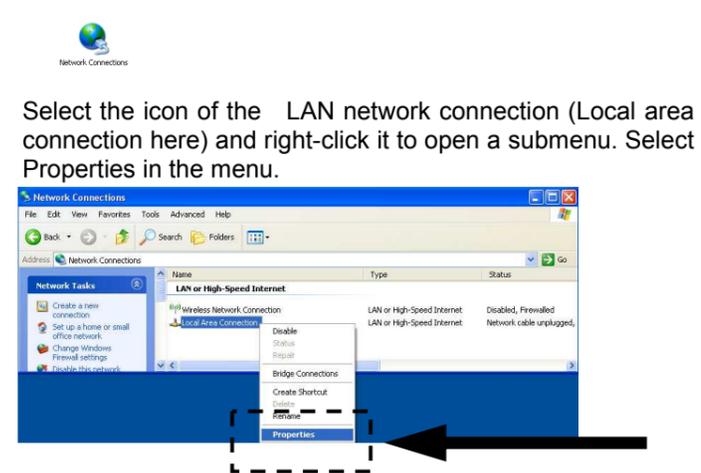
2. PC settings

According to the following procedure, you will need to change the IP Address of your TCP/IP connection.

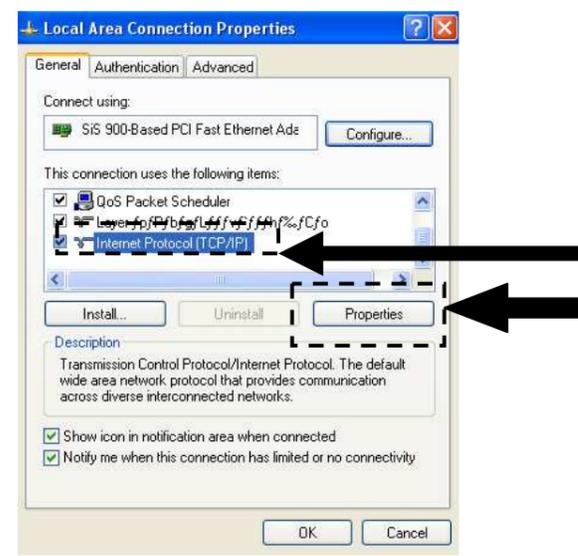
Start the PC. Select [Control Panel] from Start in the menu.



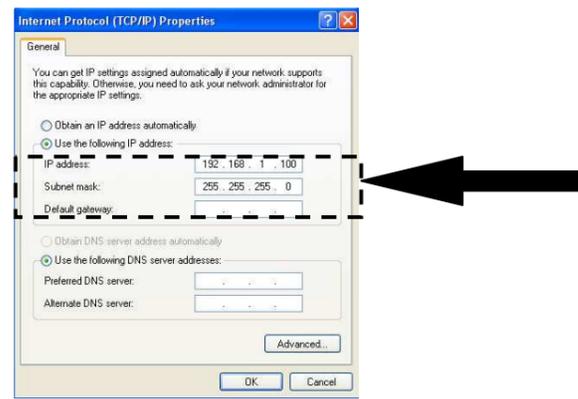
Warning The PC that you're using now disconnected from the network. Take a note of the IP address, etc. and also consult with your network administrator. Select [Network Connections].



Select [Internet Protocol (TCP/IP)] in the list of [This connection uses the following items.] of [General] tab and click [Properties].



Check [Use the following IP address:] and set the IP address, subnet mask and default gateway.



Assign an IP address not to conflict with other instruments. Set the following, [IP address: 192.168.1.100, Subnet mask: 255.255.255.0, Default gateway: Blank] are set. By clicking [OK], the IP settings are entered.

[Current memorandum]

IP address

Subnet mask

Default gateway

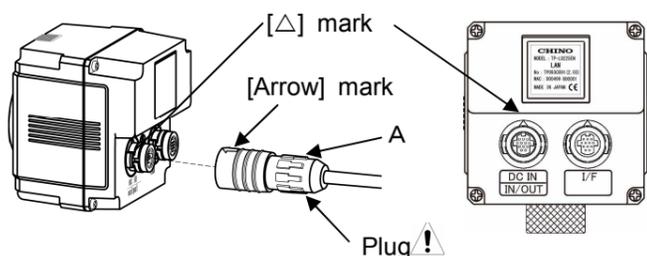
3. Connection of thermal image sensor and PC

Connect the custom power/alarm output cable and the custom Network cable to the sensor.

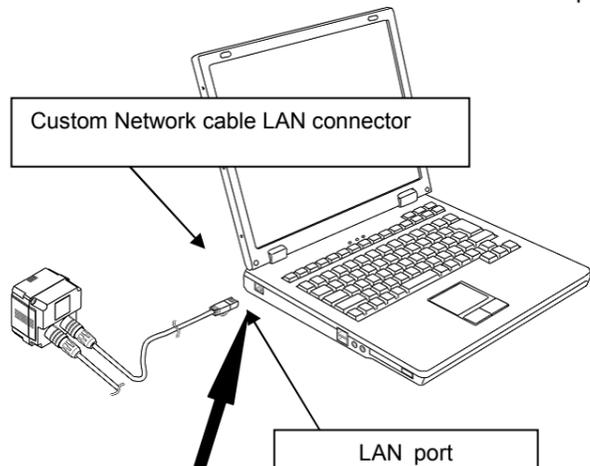
Connect them to align the marks of [△] back of the sensor and [Arrow] on the cable connectors.

To avoid misconnections, the custom Network cable is designed not to connect to the power/alarm output connector of the sensor. Similarly, the exclusive power/alarm output cable cannot be connected to the LAN connector of the sensor.

⚠ The connections are a quick-disconnect locking type. Insert the plug until it clicks. To unplug, hold the sliding part (that has the [Arrow] marking on) and pull it outward. If the "A" part is pulled, the plugs may be damaged.



Plug the connector of the custom Network cable to the Ethernet port of a master unit (PC, etc.). And connect the O-tip terminals of the custom power/alarm output cable to the terminal block of 12VDC Power Supply.

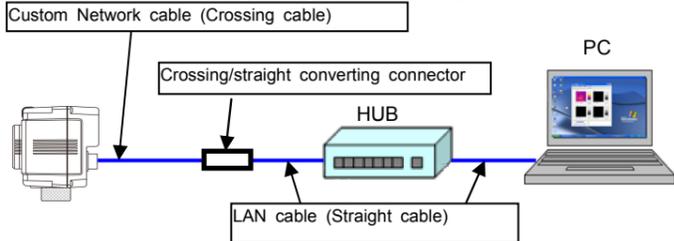


Connect the thermal image sensor directly to the PC by supplied cable.

Make sure to connect the thermal image sensor to the PC directly for LAN settings. When other instruments (including other thermal image sensors) are connected via a hub, etc., remove them from the network to configure so that one set of the thermal image sensor is only connected to the PC on the network.

⚠ If the LAN settings are performed when multiple thermal image sensors have been connected on the network, not connecting the settings of thermal imaging sensor may not be configured correctly.

◆ Connection example of HUB (when a HUB without automatic crossing/straight converting function is used)



4. LAN settings of thermal image sensor

Start this application software.

⚠ A warning by security software may appear at the initial startup. Set it up to allow the communication via this application software.

Select [Sensor Setup] → [Network(Sensor)] in the menu.

The following screen will appear. Enter information into the following setting items.

- Sensor number
A Numbers to be assigned to each sensor. Enter the numbers from 1 to 4. When one sensor is only used, enter 1. When multiple sensors are used, assign the numbers from 1 to 4 not to overlap each other.
- IP address
IP addresses to be allocated to sensors. Assign a unique IP Address to the sensor(s) not to conflict with other instruments.
- Subnet mask
Data to specify the address of network from the IP address. Enter an arbitrary subnet mask.
- Gateway
IP address of a relaying unit in case that there is not the designation IP address on the subnet. When the gateway is not used, select [Disable].

After entering addresses, click [Apply]. When the transmission is completed properly, [ALL SET OK!] is displayed on the message box.



If the data is not transmitted, confirm the connection of network, etc. and click [Apply] button again.

By the above procedure, the LAN settings of the thermal image sensor are completed.

⚠ Please reboot the sensor because when LED indicator of the sensor blinks twice in purple.

⚠ When multiple thermal image sensors are used, perform the same settings for each thermal image sensor. In case of multiple sensors being used, perform the LAN settings of each sensor connected to the PC separately.

Initial settings of application software

These steps described here will register the sensor to be connected to the application software. Select [Sensor Setup] → [IP Address] in the menu.

The following screen will appear. Enter the following items.

- Checkboxes for Sensor 1 to Sensor 4
Check (✓) the checkboxes of the sensor numbers that you want to communicate with.

For example, when 2 thermal image sensors are used and "1" and "2" are allocated to these sensors in the LAN setting of the sensors, check (✓) the [Sensor 1] check box and [Sensor 2] checkbox.

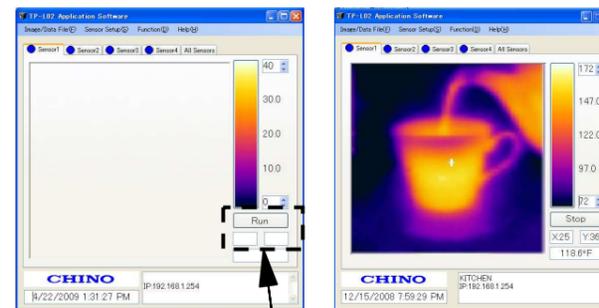
- IP address
Enter the IP addresses assigned to each sensor with the Network settings procedure.
- Sensor ID
You can give each sensor a name here. For example, you can use location names such as furnace-1, furnace-2, etc.

After the above items are entered, click [Apply]. By the above procedure, the initial settings of the application software are completed.

⚠ When the LAN settings of the sensors are changed, change these settings as well, otherwise image and data will not be displayed correctly.

Displaying of thermal image

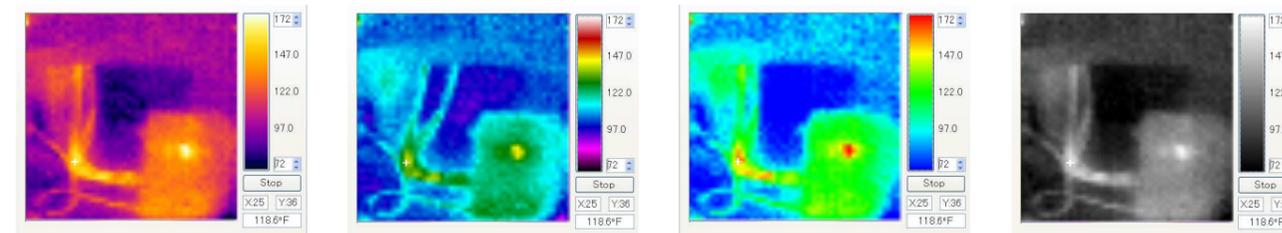
Start Application Software and the following screen will appear. Click [Run] button on the screen.



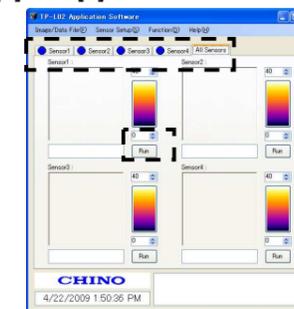
[RUN] button

⚠ When the IP registration to the application software is not completed yet, the message of [No IP Address found] will appear. Complete the registration of IP.

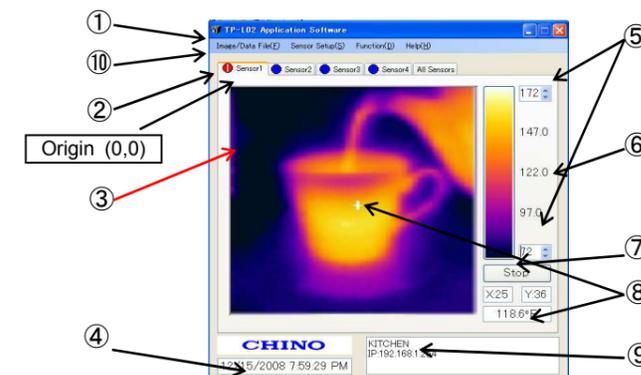
◆ Color pallet Iron Rainbow Gradation Gray Scale



[When multiple sensors are connected] When multiple sensors are connected, click the tab of the sensor number you want to display and then perform the above [1] and [2].



Screen configuration and explanation



No	名称	説明
①	Main Menu Bar	Various functions offered by this application software can be selected.
②	Sensor Tabs	For selecting the sensor to be displayed
③	Thermal Image Screen	Display a 2-dimensional thermal image based on temperature from each pixel in a 48x47 array. The frame rate of the display is 3fps. The coordinates of pixels displaying temperature values are (X=0, Y=0) as the origin at the top-left and (X=47, Y=46) at the bottom-right.
④	Current Time	The current time of the PC is displayed.
⑤	Temperature Scale	Maximum and minimum values of the temperature scale being displayed currently. To change values, click the Up/Down arrows mark or enter values from the keyboard after clicking the box.
⑥	Color Palette	The temperature of temperature scale is displayed by 256 colors. By clicking the color palette, the displaying color pattern of thermal image can be changed. The default is the iron. The display pattern can be selected from 4 kinds of iron, rainbow, gradation and gray.
⑦	Run/Stop	Run/Stop for communication.
⑧	Temperature Value and Coordinate of the pixel	The coordinate and temperature value selected by the sensor are displayed.
⑨	Sensor ID	The name and IP address of the sensor displaying the thermal image are indicated. (Enter the sensor name in the sensor IP registration screen.)
⑩	Indicator for Alarm from Sensor	The red/yellow colors are flashed when the alarm set on the sensor(s) is activated. (The alarms are displayed at the upper side of the tab of sensor.)