TP-L SERIES
Thermal Imaging Sensor

TP-L series is a compact infrared thermal imaging sensor utilizing a thermopile array detector.
This CHINO developed detector allows the sensor to measure real time temperature.
Ethernet / USB connectivity allows the sensor to communicate with PC running CHINO Imaging Software.

■ FEATURES

● **Easy to Use and Implement**
● **2000 pixel Resolution**
● **Built-In Alarms**
● **IP65 / NEMA4**

■ MODEL

Low-temp type (−20 to 300℃)
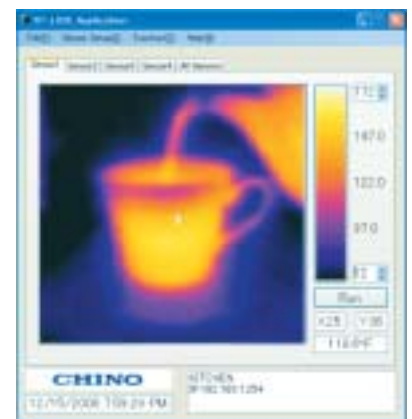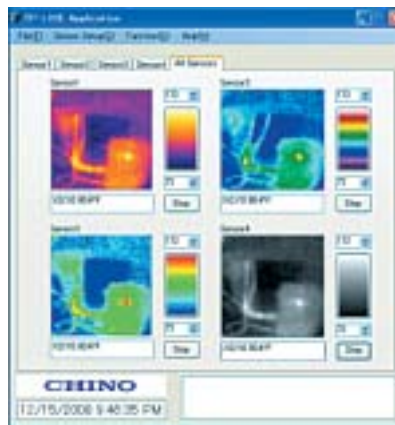
TP-L02□□□N

Viewable Angle
25 : 25˚x 25˚
60 : 60˚x 60˚
Communications Interface
E : Ethernet
U : USB

High-temp type (100 to 800℃)

TP-L0225EK

Viewable Angle
25 : 25˚x 25˚
Communications Interface
E : Ethernet

■ SPECIFICATIONS

Temp Range: Low-temp type −20 to 300℃
High-temp type 100 to 800℃
Resolution: 0.5℃ (At black body temperature of 100℃)
Accuracy: Low-temp type
±2% of reading or ±3℃ whichever lager
High-temp type
±1% of reading or ±3℃ whichever lager
(At Ambient temp of 25℃ ±2℃)
Detector: Thermopile array Approx.2000 Pixel
Wavelength: Center wavelength $10\mu m$
Viewable Angle: Low-temp type 60˚x 60˚, 25˚x 25˚
High-temp type 25˚x 25˚
Radius Resolution:
60˚x 60˚ —— 21.8mrad
25˚x 25˚ —— 9.1mrad
Frame Speed: Ethernet —— 3Hz (1Hz for alarm output)
USB —— 0.5Hz
Focus: Fixed focus
Emissivity: 0.10 to 1.00

Communications Interface:
Ethernet —— 10BASE-T/100BASE-TX
USB —— USB2.0
Alarm: 2 points(Non voltage contact output)
Power Supply: 12 to 24V DC
Power Consumption:
Ethernet —— Max 2.5VA (At 12V DC)
USB —— Max 1VA (At 12V DC)
Inrush Current[*1]: Max 1.3A (At 12V DC)
Working Temp: −10 to 50℃
Working RH: 10 to 80%RH (No dew condensation)
Casing: Polycarbonate (Color: Black)
Weight: Approx. 150g (sensor only)
Protection: IP65 (w/ provided exclusive cable and tripod screw)
Standards: CE (EN61326 Annex A)

⚠ *1 The inrush current should be considered for the selection of power source.

PSE-703A

■ FUNCTIONS

● **Monitoring mode (with exclusive viewer software)**

The temperature data is outputted continuously by a command from the PC.

● **Capturing mode (without using exclusive viewer software)**

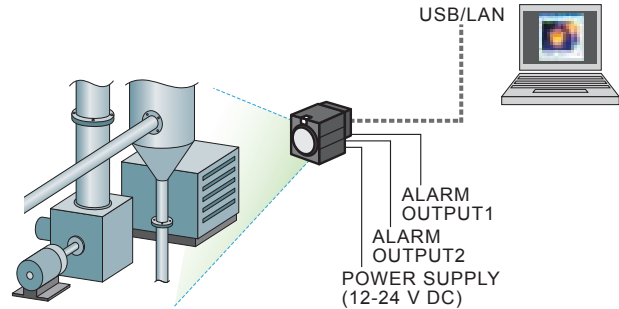The temperature data is outputted row-by-row horizontally by a command from PLC, etc.

■ CONNECTIVITY

Viewer Software allows you monitor thermal images, measuring temperature and alarms.
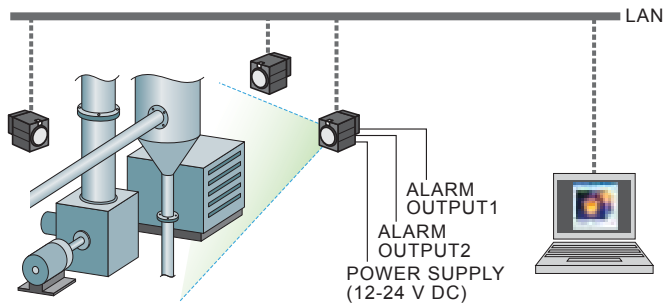
Monitoring Mode

● **Single unit usage**

・Single unit can monitor 1 area and has 2 alarm outputs.

・When alarm goes on, the unit stores 1 image to the memory.

・Image saving updates every occurrence of alarm.

・Reading the data from host PC is possible.

USB/LAN

ALARM OUTPUT1
ALARM OUTPUT2
POWER SUPPLY (12-24 V DC)

● **Multiple unit connection (LAN)**

・Up to 4 sensors can be connected

・Monitoring and alarm outputs from sensor can be used together.

LAN

ALARM OUTPUT1
ALARM OUTPUT2
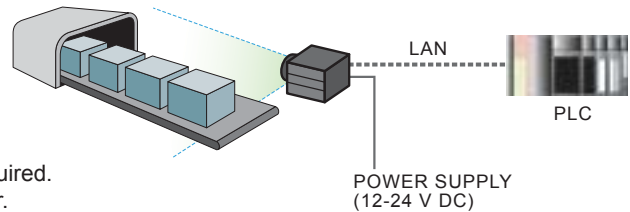POWER SUPPLY (12-24 V DC)
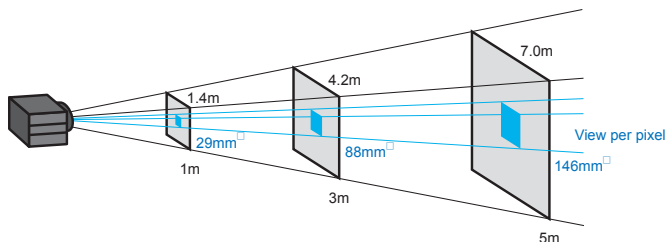
Capturing Mode

● **PLC connection**

・The temperature data is outputted row-by-row horizontally by a command from PLC, etc.

⚠ When the capture mode is used, acquisition of command is required.
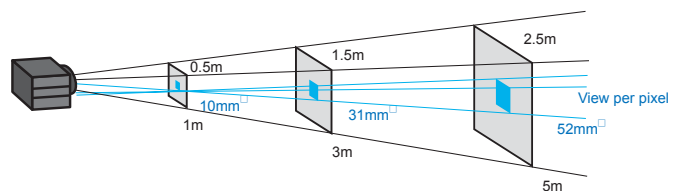For the acquisition of command, contact your nearest distributor.

LAN

PLC

POWER SUPPLY (12-24 V DC)

■ MEASURING SPOT SIZE AND DISTANCE

● **Viewable Angle 60˚x 60˚**

7.0m
4.2m
1.4m
29mm□
88mm□
146mm□
View per pixel
1m
3m
5m

D	1m	3m	5m
Width (m)	1.4	4.2	7.0
Width/Pix (mm)	29	88	146

● **Viewable Angle 25˚x 25˚**

2.5m
1.5m
0.5m
10mm□
31mm□
52mm□
View per pixel
1m
3m
5m

D	1m	3m	5m
Width (m)	0.5	1.5	2.5
Width/Pix (mm)	10	31	52

■ APPLICATION SOFTWARE

● Requirements

OS : Windows 2000 (SP4 or later)/XP/Vista (Windows XP or later recommended)
      * NET Framework 2.0 or later (required)

Memory : Windows 2000/XP.....1GB recommended (512MB or more)
          : Windows Vista.....2GB or more recommended

CPU : Windows 2000/XP.....1.5GHz or faster recommended
          : Windows Vista.....2GHz or faster recommended

∗ "Microsoft" and "Windows" are either trademarks or registered trademarks of Microsoft Corporation, USA.
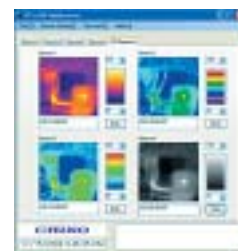
∗ "Intel" and "Pentium" are either trademarks or registered trademarks of Intel Corporation, USA.

● Provided application software

Various functions of data storage, image processing, trend graph, alarm settings, etc.

  Via LAN up to 4 sensors can be connected to a PC.

  Via USB 1 sensor can be connected to a PC.

- **Various settings of sensor**

  LAN settings / Alarm settings of the sensors / Emissivity setting

- **Data storage**

  Image temperature data storage (temperature data/csv for 2000 pixels) / Thermal image screen storage (JPEG)

- **Image processing**

  Screen averaging / Spatial smoothing / Median filter / Rotation / Maximum & Minimum values indications
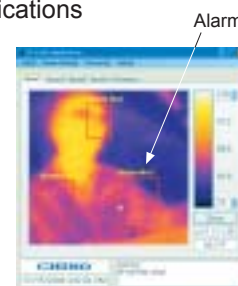
- **Trend graph**

  By specifying a graph area, data can be displayed by the trend graph and the graph data can be stored by setting. (Max. 8 areas)

- **Alarm settings by the application software**

  By specifying a graph area, alarms can be set. (Max. 8 areas)
  Separately from the alarm settings of the sensor, the alarm screening by the application software can be performed. (Max. 8 areas)

Alarm

Trend graph   Alarm screening

● Multipoint connection software (OPTIONAL)

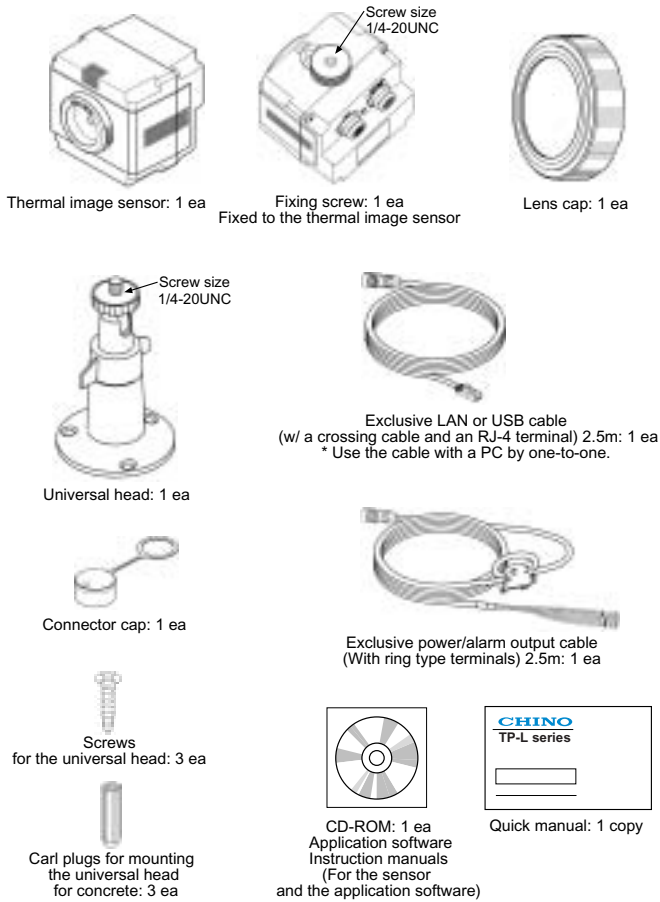Email notification at the occurrence of alarm.

Via LAN up to 32 sensors can be connected to a PC

*Ethernet application only

⚠ The alarm of the sensor is interlocked with the contact output, but the contact output cannot be activated with the alarm by the application software.

■ STANDARD CONFIGURATION

Thermal image sensor: 1 ea

Screw size 1/4-20UNC

Fixing screw: 1 ea
Fixed to the thermal image sensor

Lens cap: 1 ea

Screw size 1/4-20UNC

Universal head: 1 ea

Exclusive LAN or USB cable
(w/ a crossing cable and an RJ-4 terminal) 2.5m: 1 ea
* Use the cable with a PC by one-to-one.

Connector cap: 1 ea

Exclusive power/alarm output cable
(With ring type terminals) 2.5m: 1 ea

Screws
for the universal head: 3 ea

Carl plugs for mounting
the universal head
for concrete: 3 ea

CD-ROM: 1 ea
Application software
Instruction manuals
(For the sensor
and the application software)

CHINO
TP-L series

Quick manual: 1 copy

● AIR PURGE CASE (OPTIONAL)
MODEL : TP-ZCC1

The air purage case is used to disperse dust and fume for keeping the light path.
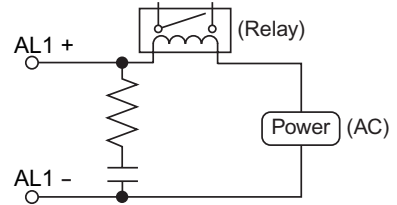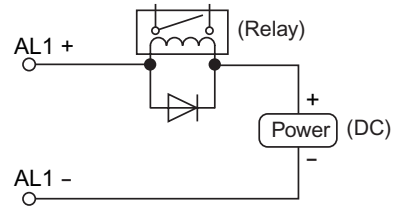
■ CONNECTION

● Example of contact output circuit

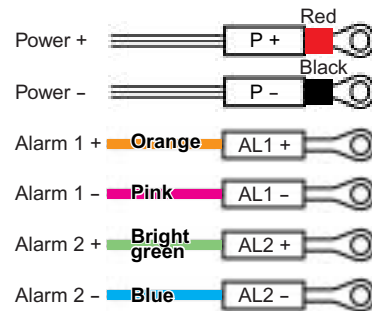⚠ Use the contact output with a protection element for preventing malfunction.
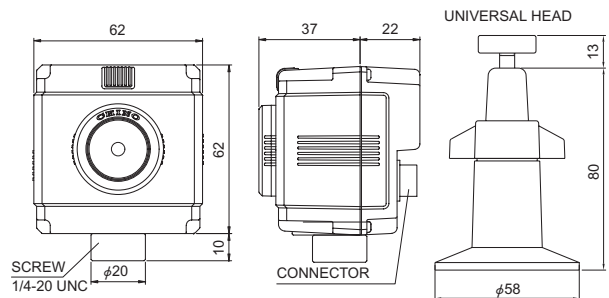
● Alarm 1, In case of AC

AL1 +
(Relay)
Power (AC)
AL1 −

● Alarm 1, In case of DC

AL1 +
(Relay)
+
Power (DC)
−
AL1 −

● Details of exclusive power/alarm output cable Ring terminal 0.5-3

Power +	P +	Red
Power −	P −	Black
Alarm 1 +	**Orange**	AL1 +
Alarm 1 −	**Pink**	AL1 −
Alarm 2 +	**Bright green**	AL2 +
Alarm 2 −	**Blue**	AL2 −

■ DIMENSIONS

62
37 22
UNIVERSAL HEAD
13
62
80
10
SCREW 1/4-20 UNC
φ20
CONNECTOR
φ58

■ PRECAUTIONS

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