Fixed Mount Type Thermal Image Measuring Device
ThermoPix
CPA-L series
Fixed Mount Type Thermal Image Measuring Device for Online Monitoring, Measurement, and Inspection

ThermoPix

CPA-L3
CPA-L4

Fixed Mount Type Thermal Image Measuring Device
Small Type Thermal Image Measuring Device

Corresponds to max 36 camera and 6 LCD monitors
Monitoring cycle one second to (depending on the number of cameras)
Processing function
- Screen mask function
- Temperature alarm (upper/upper-upper limit)
- Trend graph display
- Storage/reproduction of alarm screen
- Alarm log etc.

Camera (max.36)
Liquid crystal monitor (max.6)
CSV data

Items
Computer
Display
OS
Memory
Software alliance
DPI

Operation environment (common)
Fixed Mount Type Thermal Image Measuring Device CPA-L series

CPA-L series are fixed mount type thermal image measuring devices consisting of a camera and a controller. The camera image pixel size is 320x240 pixel (measuring wavelength of 8 to 14 µm) and has measurement range of -20 to 150°C, 0 to 300°C and 0 to 500°C. The shutter-less mechanism which does not require calibration enables continuous measurement without measurement loss when measuring moving objects.

Other than temperature measuring process of spot, line and area the controller has functions like binary image processing and particle analysis. In addition to this, measured values / evaluation results can be displayed on the LCD monitor of main unit as well as can be output to LAN, analog signal and digital signal.

### System Configuration

#### Operation with a camera and a controller

- **Camera**
  - CPA-L3 / CPA-L4
- **Controller**
- **LAN**
- **PLC**
- **External input/output unit**

**Functions:**
- Setting of the camera
- Display of thermal image
- Temperature measuring device
- Image processing function etc.

**Note:**
Max. 4 units of CPA-L3 and CPA-L4 can be used together.

#### Operation without controller

- **Camera**
  - CPA-L4
- **Personal computer**
- **LAN**

**Functions:**
- Setting of the camera
- Display of thermal image (using browser)

### Camera

**Fixed mount type thermal image measuring device CPA-L3**

- **Field angles five types covering telephoto to wide angle are provided.**
  - Lens of 12°, 25°, 50°, 70° and 90° are provided.
- **Measuring temperature range can be extended up to maximum of 2000°C. (Accuracy is guaranteed up to 1500°C.)**
  - The temperature range can be extended according to various needs covering those from monitoring of heat generation near common temperature up to temperature measurement of objects with high temperature such as glass/iron and steel process.
- **Remote focus function**
  - Camera focus can be changed by entering the distance through controller.

**Small type thermal image measuring device CPA-L4**

- **Operable without the controller.**
  - Alarm can be output from camera by setting alarm setting area through WEB browser. Further thermal images can also be output as image.
- **2 types of lens, 25° and 50° are provided.**
- **Manual focus function on board**
  - Focus adjustment function is provided at the back of camera so that the focus can be changed easily even if the camera is having protection case.

### Controller

**CPG-GMP2L**

- **Maximum of 4 cameras can be connected**
  - Four cameras in maximum can be connected to one unit of the controller for measurement and display. System configuration of multiple cameras can be carried out easily.
- **Automatic measurement and inspection by connecting external input/output units**
  - Additional I/O of 32 points of analog output, 40 points of contact output and 40 points of contact input external I/O units can be achieved by connecting external I/O unit.
- **Measured data can be sent to high order PC and PLC and control is possible**
  - Measured values can be sent to high order PC/ PLC through socket communication. Further measured data can be by setting shared network drive.
**Stable continuous measurement**

- Continuous measurement by shutter-less structure
- Indicated variation is controlled in ambient temperature changes

CPA-L series comes with ambient temperature compensation algorithm that enables stable measurement. Shutter less structure enables continuous measurement without measurement loss even in the continuous operating line.

**Calculation function corresponding to diverse needs**

Numeric operation functions and logical operation functions provided as standard functions of controller enable the high order judgment.

- **Temperature judgement**
  Event is judged when maximum temperature within inspection frame is within threshold temperature.

- **Area judgement**
  Event is judged when pixel count of threshold temperature within inspection frame is within set range. Temperature judgement is also possible along with area judgement.

- **Particle judgement**
  Event is judged when the threshold pixel count within inspection frame is continued in the set range it is considered as particle, and when the particles are in the set range.

**Wide range of inspection and measurement functions**

- **Temperature judgement (Thermal image)**
  Max temperature is monitored and overheating and resin disconnection can be monitored.

- **Mass detection judgement (Binarization processing)**
  Can be checked if multiple resins are getting mixed or not

- **Edge judgement (Thermal image)**
  Images are processed based on temperature difference and width of non-bonded part can be measured.

- **Extraction of cold spot (Binarization processing)**
  Cold spots (defective areas) can be determined by enlargement / reduction process after binarization process is carried out.

**Resin extrusion fusion monitoring**

Checking resin temperature and if two resins are mixed or not

**Monitoring of bonded materials and cold spots**

- Temperature alarm judgement area
- Temperature judgement areas can be set at various extrusion points of resin and alarm judgement can be performed by measuring max temperature within area.

- Resin fusion judgement area
- Binary threshold of temperature that can be judge the presence of resin can be set, judgement as lump based on the size of white particles (resin) can be done.
- As the values at the time of fusion are different for normal and lump, the alarm can be output at the time of lump.

- Temperature judgement is also possible along with area judgement.

- Edge position when there are position is taken as 0 to 100 % is analog output.
- Scan is made in a direction from the left to the right (or the upper side to lower side).
- A part having presence of temperature difference is evaluated as an edge.
- Edge position when there are position is taken as 0 to 100 % is analog output.

- Extracted temperature signal (analog output)
- Error output

- Lowest temperature of lump can be extracted and lowest temperature within the lump can be analog output.

- Event is judged when the threshold pixel count within inspection frame is within set range it is considered as particle, and when the particles are in the set range.

- Event is judged when maximum temperature within inspection frame is within threshold temperature.

- Event is judged when pixel count of threshold temperature within inspection frame is within set range. Temperature judgement is also possible along with area judgement.

**Stable continuous measurement**

- Continuous measurement of wood chips

**Fluctuation in indication in case of sudden change in the ambient temperature**

- Continuous measurement by shutter-less structure
- Indicated variation is controlled in ambient temperature changes

- Temperature alarm judgement area
- Temperature judgement areas can be set at various extrusion points of resin and alarm judgement can be performed by measuring max temperature within area.

- Resin fusion judgement area
- Binary threshold of temperature that can be judge the presence of resin can be set, judgement as lump based on the size of white particles (resin) can be done.
- As the values at the time of fusion are different for normal and lump, the alarm can be output at the time of lump.

- Event is judged when the threshold pixel count within inspection frame is within set range it is considered as particle, and when the particles are in the set range.

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  Can be checked if multiple resins are getting mixed or not

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  Images are processed based on temperature difference and width of non-bonded part can be measured.

- **Extraction of cold spot (Binarization processing)**
  Cold spots (defective areas) can be determined by enlargement / reduction process after binarization process is carried out.
Fixed mount type thermal image measuring device CPA-L3

### Models

**Camera**

CPA-L3

- **Field angle:**
  - Horizontal 12° × Vertical 9°
  - Horizontal 25° × Vertical 19°
  - Horizontal 50° × Vertical 37°
  - Horizontal 70° × Vertical 51°
  - Horizontal 90° × Vertical 67°

### Protective case

CPY-Z3

- **Cooling system**
  - E: Air cooling (connection of waterproof connector)
  - G: Air cooling (cable-incoming type)
  - H: Water cooling

- **Option 1**
  - N: None
  - P: Front purge
  - C: Air cooler
  - B: Front purge + air cooler

- **Option 2**
  - N: None
  - S: Cover glass

### Cover glass (for single unit)

CPY-Z3CWS

- **Camera type**
  - 0: For CPA-L12B3/L25B3/L50B3
  - 7: For CPA-L70B3
  - 9: For CPA-L90B3

### Camera Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>CPA-L12B3</th>
<th>CPA-L25B3</th>
<th>CPA-L50B3</th>
<th>CPA-L70B3</th>
<th>CPA-L90B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element</td>
<td>Uncooled solid state imaging element</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of pixels</td>
<td>320×240</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame rate</td>
<td>60Hz (30 Hz when controller is connected)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Specify -20 to 150°C / 0 to 300°C / 0 to 500°C at the time of purchase. Temperature range can be extended up to max 2000°C as option</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring indication accuracy</td>
<td>Larger one out of ± 2% or ±2°C (However ± 3% in case of ε=1.0, 0°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Remote (by inputting a numerical value from the controller)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View angle (horizontal × vertical)</td>
<td>12°×9°</td>
<td>25°×19°</td>
<td>50°×37°</td>
<td>70°×51°</td>
<td>90°×67°</td>
</tr>
<tr>
<td>Measuring distance</td>
<td>1.0m to ∞</td>
<td>0.3m to ∞</td>
<td>0.2m to ∞</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission of image data</td>
<td>UDP (exclusive protocol) 1000BASE-T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working temperature range</td>
<td>–10 to 50°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective structure</td>
<td>IP65 compliance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2.4kg</td>
<td>2.3kg</td>
<td>2.3kg</td>
<td>2.4kg</td>
<td>2.5kg</td>
</tr>
</tbody>
</table>

### External dimensions

**Camera**

CPA-L12B3/L25B3/L50B3

CPA-L70B3

CPA-L90B3

Back side of camera are common for all models

Unit: mm
### Camera Specifications

- **Working temperature range**
- **Measuring distance**
- **Weight**

### Models

- **Infrared Camera**
  - **Model:** B3
  - **Field angle:** 12°×9°, 25°×19°, 50°×37°, 70°×51°, 90°×67°

### Protective Structure

- **Infrared Camera**
  - **Cover glass (for single unit):** CPY-Z3

### Protective case

- **Air-cooling protective case**
  - **CPY-Z3ENN** (with waterproof connector)
  - **CPY-Z3GNN** (Cable incoming type)

### Camera communication cable

- **CPY-ZMC** (at the use of camera alone)

### Camera power cable

- **CPY-ZMP** (at the use of camera alone)

### Water-cooling protective case

- **CPY-Z3HN**

### CPA-L3 series cables list

<table>
<thead>
<tr>
<th>Combination</th>
<th>Models</th>
<th>Communication cables</th>
<th>Power cables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main body</td>
<td>CPA-L1B3/L2B3/L50B3</td>
<td>CPY-ZMR</td>
<td></td>
</tr>
<tr>
<td>Protective case</td>
<td>CPA-L12B3/L25B3/L50B3</td>
<td>CPY-ZME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPY-Z3E</td>
<td>CPY-ZMC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPY-Z3G</td>
<td>CPY-ZME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPY-Z3H</td>
<td>CPY-ZMC</td>
<td></td>
</tr>
</tbody>
</table>

### Utility

<table>
<thead>
<tr>
<th>Apparatus inside air</th>
<th>Cooling water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without using of air-cooler</td>
<td>0.5 to 2 L/min (10L/min MAX)</td>
</tr>
<tr>
<td>When used</td>
<td>100 to 300 NL/min</td>
</tr>
<tr>
<td>165 to 390 NL/min</td>
<td>0.3 to 0.7MPa</td>
</tr>
<tr>
<td>5 to 50kPa</td>
<td>Adjustment is required by temperature of flow-in air. 0.3 MPa MAX</td>
</tr>
</tbody>
</table>
Small type thermal image measuring device CPA-L4

**Models**

**Camera** CPA-L□□B4□

- Field angle: 25°: Horizontal 25° × Vertical 19° 50°: Horizontal 50° × Vertical 37°
- Device specifications: Blank space: Standard 01: Controller-less*

**Protective case** CPY-Z4□□

- Cooling system: G: Air cooling  H: Water cooling
- Front purge: P: Attached  N: None
- Air cooler: C: Attached  N: None
- Device specifications: N: Standard  A: Controller-less

*Controller cannot be connected in case of controller-less model.

**Camera Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>CPA-L25B4□□</th>
<th>CPA-L50B4□□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection element</td>
<td>Uncooled solid state imaging element</td>
<td></td>
</tr>
<tr>
<td>Number of pixels</td>
<td>320×240</td>
<td></td>
</tr>
<tr>
<td>Frame rate</td>
<td>60Hz (30 Hz when controller is connected)</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Specify -20 to 150°C / 0 to 300°C / 0 to 500°C at the time of purchase.</td>
<td></td>
</tr>
<tr>
<td>Measurement indication</td>
<td>Larger one out of ± 2% or ±2°C (However ± 3% in case of ε=1.0, 0°C)</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Manual</td>
<td></td>
</tr>
<tr>
<td>View angle (horizontal x vertical)</td>
<td>25° ×19°</td>
<td>50°×37°</td>
</tr>
<tr>
<td>Measuring distance</td>
<td>0.3m to ∞ (Focusing range, accuracy rating is 0.5m or more)</td>
<td>0.2m to ∞ (Focusing range, accuracy rating is 0.5m or more)</td>
</tr>
<tr>
<td>Transmission of image data</td>
<td>UDP (protocol for exclusive use) 1000BASE-T</td>
<td></td>
</tr>
<tr>
<td>Working temperature range</td>
<td>−10 to 50°C</td>
<td></td>
</tr>
<tr>
<td>Protective structure</td>
<td>IP40 compliance</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1.2kg</td>
<td>1.3kg</td>
</tr>
</tbody>
</table>

**Controller-less**

(Controller-less) Operation with CPA-L4 camera alone is possible by option. Setting parameters can be registered in camera main unit and PC can be disconnected at the time of measurement.

**Image output**

The images can be displayed on the commercially available monitor
- Real-time display (60Hz)
- Color bar display (Scale setting Automatic/Manual)
- Specified spot and temperature display (optional setting)
- Isothermo display

**Alarm output**

Area can be set and alarm can be output from the camera main unit.
- Alarm contact point: 2 points (non-voltage contact point, 24VDC, 0.1A)
- Alarm values can be set for max. of 5 specified areas
- Area shape: square
- Alarm conditions can be set between areas (AND / OR)
- Max. value, min value average value within area

**Web setting / display**

Thermal image display and setting of extension functions
- Camera specific thermal images and color scales are displayed in Web browser
- Various setting of camera (such as alarm conditions)

**Back side of the main body**

Standard specifications

- It is protected by cover
- Focus adjustment screw
- LAN cable connector
- Power connector

Controller-less specifications

- Focus adjustment screw
- Image output connector
- LAN cable connector
- Power connector
- Alarm output connector

*Controller cannot be connected in case of controller-less model.*


**Standard specifications**

- **Small type thermal image measuring device CPA-L4**
  - Setting parameters can be registered in camera main unit and PC can be disconnected at less model.

**View angle (horizontal x vertical)**

- **Measurement indication**
  - Personal computer/tablet

**Working temperature range**

- **Protective structure**

**Measuring distance**

- 60Hz (30 Hz when controller is connected)

**Uncooled solid state imaging element**

- 320×240

**Temperature range**

- **Number of pixels**

**Models**

- LAN cable connector
  - It is protected by cover

**Focus**

- Device specification:
  - 0.3m to ∞ (Focusing range, accuracy rating is 0.5m or more)
  - 0.2m to ∞ (Focusing range, accuracy rating is 0.5m or more)

**Controller-less**

- 10 to 50

**Image output**

- **Alarm**
  - Various setting of camera (such as alarm conditions)
  - Max. value, min value average value within area
  - Alarm conditions can be set between areas (AND / OR)
  - Camera specifications thermal images and color scales are specified spot and temperature display (optional setting)
  - Color bar display (Scale setting Automatic/Manual)
  - Real-time display (60Hz)

**Air cooler**

- Attached

**Front purge**

- Standard

**Flow rate**

- 280 to 640 NL/min

**Pressure**

- 5 to 50 kPa

**Air temperature:** 35°C or less

**Cooling water**

- 0.5 to 3 L/min

**Unit:** mm

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**Camera**

- Common

**External dimensions**

- CPA-L25B4
  - 150

**Controller-less specifications**

- Setting / display
  - Image output connector

**Image output connector**

- **Alarm**
  - Various setting of camera (such as alarm conditions)
  - Max. value, min value average value within area
  - Alarm conditions can be set between areas (AND / OR)
  - Camera specifications thermal images and color scales are specified spot and temperature display (optional setting)
  - Color bar display (Scale setting Automatic/Manual)
  - Real-time display (60Hz)

**Camera communication cable**

- **CPY-ZMRC** (when using camera as stand-alone)

**CPY-ZMC** (when using protection case)

**Camera power cable**

- **CPY-ZMP** (when using camera as stand-alone)

**Image output cable**

- **CPY-ZMV** (when using camera as stand-alone)

**Alarm output cable**

- **CPY-ZMK**
Controller CPG-GMP2L

Controller specification

- **Camera connection**: Max. 4 units (When using HUB)
- **Display unit**: 8.4 type TFT color LCD (with touch panel), with analogue VGA output for external display
- **External I/O**: Contact output: Max. 40 points (Main unit 8 points, others via external I/O unit) * Contact input: Max. 40 points (Main unit 8 points, others via external I/O unit) * Analog output: Max. 32 points (via the external I/O unit)
- **High order interface**: 100Base Ethernet 1 port
- **Power**: 24V DC, 50W (100 to 240V with DC power for AC)
- **Working temperature and humidity range**: 0 to 45°C, 20 to 85%rh (No dew formation)
- **Protective structure**: IP65 compliant (front panel part)
- **Mounting**: Embedding in panel front (installation on panel back)
- **Weight**: About 3.5kg
- **Accessories**: USB keyboard, mouse, power unit

*Standard DIO cables are necessary for input/output of the eight contact points in the main unit.

With terminal unit: CPY-ZMDT  Round tip: CPY-ZMDC

External I/O Unit (Option)

- **AC/DC power unit**: 100 to 240V AC, 2 units in maximum are required.
- **IO controller module**: Controller and LAN are connected. Max. 2 units are required. When 2 units are connected, HUB is required.
- **Ao module**: Path insulated, 4-point output/module, be connectable to 8 modules in maximum
- **DIO module**: 8-point input/8-point output / Module, can be connected to 8 points in maximum.

**Used temperature and humidity range**: 0 to 45°C, 20 to 80% (No dew formation)

**Mounting method**: Mounting of DIN rail

Data processing functions

- **Processing products**: 32 types (a series of setup values that combine below mentioned measurements and inspection processes)
- **Measurement, inspection mode**: Once/continuous/auto repeat
- **Emittance compensation**: 0.001 to 2.000
- **Image data display**: Thermal image display - Standard/Zoom/Multi/multiple cameras switching, and image freezing available Simulated color image (rainbow, grey etc.). Total 10 kinds

**Display of data** - Display of current values of measured values, judgement value, and calculated values

- **Real time trend, temperature profile, histogram**
- **Binarization** - Temperature °C or numerical values calculation setting

**Spot processing**: 16 points / types temperature values and upper and lower limit determination

**Line processing**: 32 lines / types, max temperature / coordinates, average temperature and higher / lower limit judgement

**Temperature profile (graph display) histogram (graph display)**

**Area processing**: Inspection processing - Binarization Extraction of the number of pixels within the threshold range, evaluation of the upper and lower limits

**Analyses of particles** - Extraction of white lamps of pixel count within setting range by binarization, lump count upper and lower limit determination, extraction of center position of lump / temperature, No of pixels, perimeter etc.

**Edge of contrasting density** - Rectangle area is differentiated horizontally or vertically and the edge position is then detected from the variation rate.

**Calculation of numerical values**: Calculation by mathematical formula set for calculated values

- **Arithmetic formula** - 64 expressions / types, Arithmetic formula AND, OR, XOR, NOT
- **Output setting**: Display of any item data from measurement values, judgement values, arithmetic results. Can be allocated to real time trend / analog output / contact output high order LAN output.
- **Images storage / replay**: Storage of static image data - 100 pieces/camera

**Storage trigger** - Manual/interval/event/external contact point/LAN

**Replay** - Search and replay the saved images remeasure and can be inspected

**High-order LAN**: Socket communication: Measured values etc. are transmitted to an high-order PC or PLC by UDP/IP socket.

**Common drive**: Whole image data is written in the drive of the high-order PC.

**Screen hard copy**: Displayed screen is converted to BMP file and stored in USB memory (Screen of setting mode cannot be saved)

**Self diagnosis**: Error contact point output (FAN stop/CPU temperature abnormality, camera abnormality, WDT)

External dimensions

- For supplying and discharging air around the main body, ensure 200mm of space.

Panel cutout dimensions

- For supplying and discharging air around the main body, 200mm of space is required.

Unit: mm
**Application examples**

- **Monitoring of Sinter ore combustion surface**
  - Sinter ore
  - Thermal image measuring device
  - Controller
  - Analog output
  - AO module
  - DIO module

- **Monitoring of ladle iron surface temperature**
  - Controller
  - HUB
  - Alarm light

- **Monitoring of heat generation at raw-material storage yard**
  - Storage yard
  - Source of heat generation
  - Thermal image measuring device
  - Controller
  - DIO unit

- **Monitoring of Automobile window defogger**
  - Controller
  - DIO unit
  - Alarm light

- **Detection of remaining fire of coke**
  - Protective case
  - Belt conveyor
  - Coke
  - Thermal image measuring device
  - Controller
  - DIO unit
  - ON/OFF signal for sprinkling

- **Monitoring of temperature of metal mold**
  - Controller
  - DIO unit
  - Start signal of test
  - Temperature abnormality of metal mold

- **Measurement of forged automobile parts**
  - Thermal image measuring device
  - Protective case
  - OK or Fail judgement signal
  - Recorder
  - Controller

- **Detection of adhesive defect of hot-melt glue on the card board**
  - Thermal image measuring device
  - Controller
  - DIO unit
  - Judgement signal
**System configuration**

**Thermal image measuring device**

**Power cables**
- CPA-ZMP Maximum length: 50m (at the use of CPA-L3 as standard)
- CPA-ZMP Maximum length: 50m (at the use of CPA-L4 as standard)
- CPA-ZME Maximum length: 100m (at the use of the protective case)

**Communication cables**
- CPA-ZMR Maximum length: 100m (at the use of CPA-L4 alone, at the use of CPA-L3 protective case)
- CPA-ZMC Maximum length: 100m (at the use of CPA-Z26-MC alone, at the use of CPA-L4 protective case)

**Optional cables** (for CPA-L4)
- Alarm output cable CPA-Z4MK Maximum length: 50m
- Image output cable (at the use of the protective case) CPA-Z4MV Maximum length: 20m

**View angle table**

<table>
<thead>
<tr>
<th>Model</th>
<th>Field angle</th>
<th>Minimum imaging distance (m)</th>
<th>Items</th>
<th>Measurement distance (m)</th>
<th>Spatial resolution (mm/deg)</th>
</tr>
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<tbody>
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<td>0.3</td>
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<tr>
<td>CPA-L2B3</td>
<td>Horizontal 12° x Vertical 9°</td>
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<td>Width of view field (m)</td>
<td>Horizontal view</td>
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<td></td>
<td>Vertical view</td>
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<td></td>
<td></td>
<td>One-pixel view (mm)</td>
<td>—</td>
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</tr>
<tr>
<td>CPA-L2B3</td>
<td>Horizontal 25° x Vertical 19°</td>
<td>0.3</td>
<td>Width of view field (m)</td>
<td>Horizontal view</td>
<td>—</td>
</tr>
<tr>
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<td></td>
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<td>Vertical view</td>
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<td>One-pixel view (mm)</td>
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<tr>
<td>CPA-L50B3</td>
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<td>Horizontal view</td>
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<td>Vertical view</td>
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<td>One-pixel view (mm)</td>
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<td>Vertical view</td>
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<td>One-pixel view (mm)</td>
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<td>CPA-L70B3</td>
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<td>Width of view field (m)</td>
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<td>Vertical view</td>
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<td>One-pixel view (mm)</td>
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<tr>
<td>CPA-L90B3</td>
<td>Horizontal 90° x Vertical 67°</td>
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<td>Width of view field (m)</td>
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<td>Vertical view</td>
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<td></td>
<td></td>
<td>One-pixel view (mm)</td>
<td>—</td>
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</tr>
</tbody>
</table>

*Note: The values provided are approximate and may vary depending on specific conditions and setup.*
Analysis software of thermal image replay (Separately sold)

This is the software to replay, analyze, save image data acquired from thermal imaging device offline.

Image replay screen

Analysis data list screen

Wide area heat generation motioning software (sold separately)

As multiple thermal image cameras are connected, conditions for detection of heat generation and evaluation of alarms are set and temperature alarms can be output at any abnormal time. This is PC exclusive software having functions of wide area, multiple places heat generation monitoring that display thermal images of specific camera from multiple monitors.

- Corresponds to max 36 camera and 6 LCD monitors
- Monitoring cycle one second to (depending on the number of cameras)
- Processing function
  - Screen mask function
  - Trend graph display
  - Temperature alarm (upper/upper-upper limit)
  - Storage/reproduction of alarm screen
  - Alarm log etc.

We also produce software tailored to your needs. For details, please contact to your nearest CHINO office.

[Operation environment (common)]

<table>
<thead>
<tr>
<th>Items</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td>Stable Windows 7 or Windows 10</td>
</tr>
<tr>
<td>Display</td>
<td>Image resolution 1280 x 1024 or higher, Compatible with Windows</td>
</tr>
<tr>
<td>OS</td>
<td>32bitOS 2GB or higher / 64bitOS 4GB or higher</td>
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<tr>
<td>Memory</td>
<td>2GB or larger</td>
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<tr>
<td>Software alliance</td>
<td>Installation of .NET Framework 4.0 is required.</td>
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<tr>
<td>DPI</td>
<td>96ppt</td>
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</tbody>
</table>

Liquid crystal monitor
(max.6)

Camera (max.36)

CPA-L3

CPA-L4

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* The names of companies and products mentioned in this catalog are trademarks or registered trademarks of those companies.

⚠️ Cautions on Safety

- This product was designed and manufactured as a general industrial measuring device.
- In installing, connecting and using this product, read the manual sufficiently and then use the product correctly.
- The written contents may be changed without advance notice because of improvement in the performance etc. Please understand it in advance.
- The contents in this catalog are as of October, 2019.