

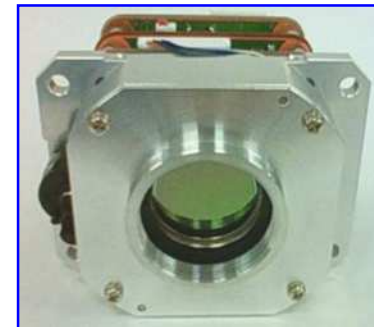
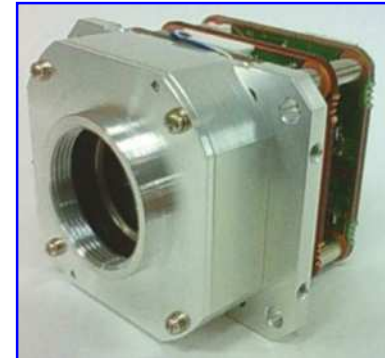
Introduction of New Infrared Module C100 series



NEC Contents

NEC Avio Infrared Technologies Co., LTD.

1. Outline, Key futures
2. Lineup, Functions
3. Specifications, Outline view
4. Lens Lineup
5. Range Performance
6. Model Number, Accessories
7. Our advantage
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9. Partnership



NEC Product outline

NEC Avio Infrared Technologies Co., LTD.

C100 series are designed for easy integration into a variety of Infrared imaging cameras and systems.

- 320 x 240 Uncooled Vox microbolometer
- Long-wave infrared 8-14um
- Advanced 23.5um pixel pitch detector
- Crisp Image; Light, compact body
- Analog Video, RS-232C Control, Digital Video (C100C,CT)
- Wide range of Lens lineup
- C100's flexible design allows rapid development

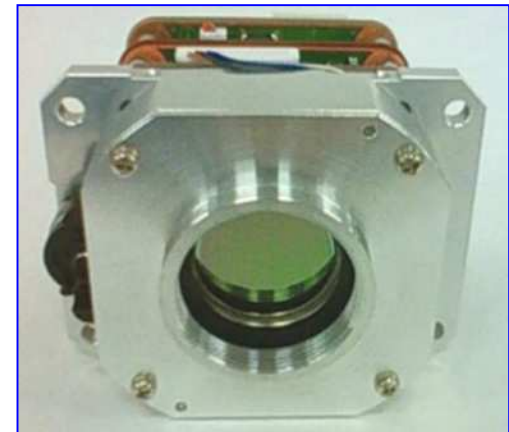
NEC Key Features

NEC Avio Infrared Technologies Co., LTD.

- 1, Image Quality Improvement functions
- 2, Display Processing functions
- 3, Selective sensor frame rate : **60Hz or 8.5Hz***
- 4, **High Quality & Stable Supply** from JAPAN-MADE
- 5, High Sensitivity below 50mk
- 6, Temperature measurement* function

*8.5Hz is available for C100C, C100V

*Temperature function is only C100CT function



NEC C100 series LINE UP

NEC Avio Infrared Technologies Co., LTD.

You can pick up the best solution from **3 models** of C100 series.

C100C: High performance & core model

C100CT: Easy temperature measurement model

C100V: C100C plus I/F and case model



Fig: C100C without lens



Fig: C100CT with 14mm lens



Fig: C100V with 14mm lens

NEC Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

Advanced Image Improvement

- 1, Newly-developed Auto Brightness and Auto Contrast algorithm
You can set the own shade image at Auto Brightness and Auto Contrast.
Meanwhile, 64 level manual setting makes the image fine-tune easily.
- 2, Image processing filter: SHARPNESS, Averaging, Gamma correction
Adjust to any installation environment, any observed object etc.
The innovative filter can help to make clear image more and more.

Flexible Image Control

We provide Graphical User Interface(GUI) to fine-tune with easy operation.

That's means you can make a image as you like in a minute.

*GUI has some function limit for C100CT.



NEC Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

Advanced Image Improvement

It makes image more clear !



Normal



SHARPNES ON !

NEC Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

Advanced Image Improvement



Normal

It makes image more clear !

Come into focus easily from near to far !



SHARPNESS ON !

NEC Display Processing functions

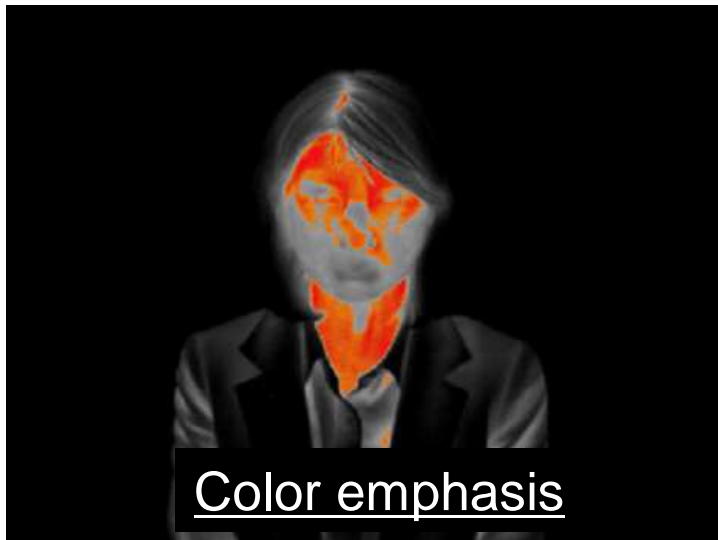
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Color Emphasis

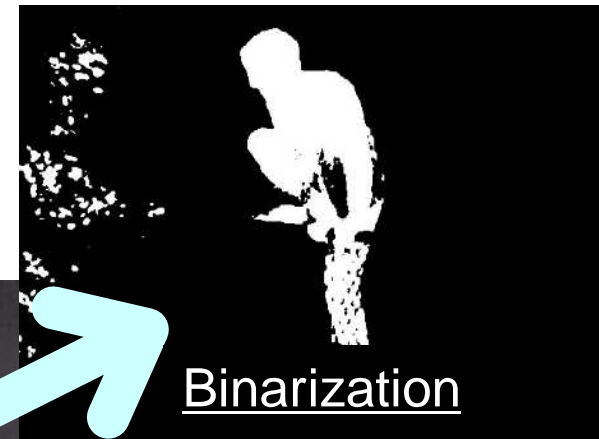
For C100C, C100V

This function is **emphasis of display color**. You can change the display colors of more or less set value as below sample images.

- Example) 1, Turn Red over threshold, gray gradation under threshold.
2, Turn white over threshold, black under threshold.



Color emphasis
Turn red over threshold.



Binarization

Turn binarized image.

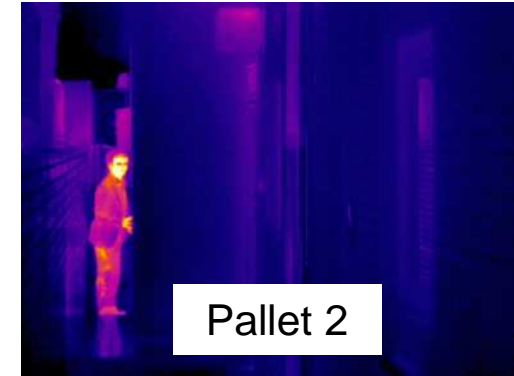
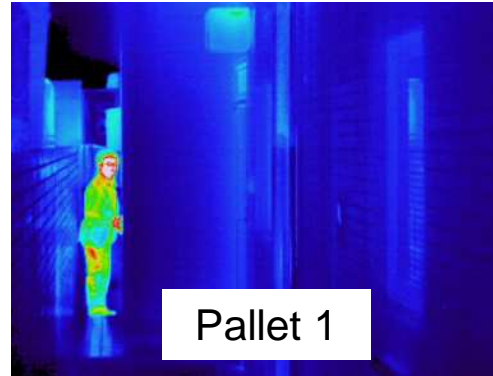
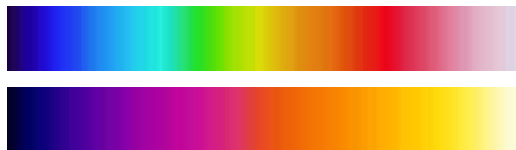
NEC Temperature measurement functions

NEC Avio Infrared Technologies Co., LTD.

Only C100CT function

1, Color pallet

2 pallets, 256 color steps



2, ISOHTERMO

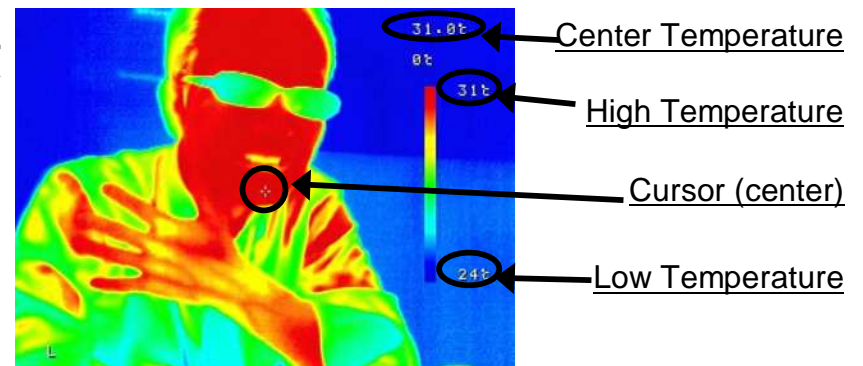
Turn color over threshold.



3, Easy temperature measurement

Reading: Center point

Accuracy: +/-15 degree C, or +/-15%

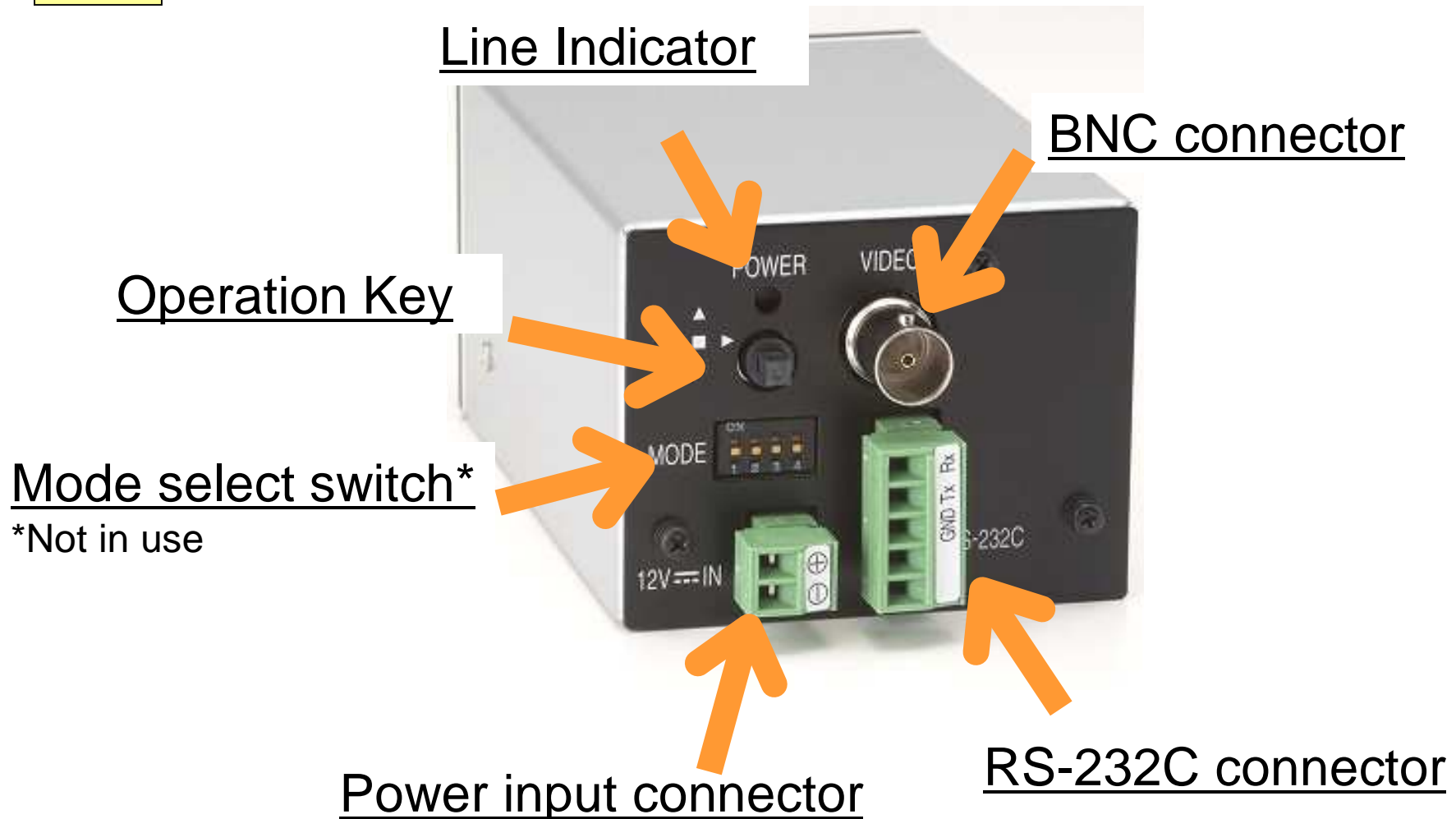


NEC C100V I/F

NEC Avio Infrared Technologies Co., LTD.

C100V has case and I/F to integrate more easy.

C100V



NEC Specifications

NEC Avio Infrared Technologies Co., LTD.

Item	C100C	C100CT	C100V
Detector	320x240 Uncooled Vox microbolometer		
Pixel Size	23.5 μ m		
Spectral range	8 to 14 μ m		
NETD (with F/1 lens)	50mk (L range, at 30 ° C)		
Sensor frame rate	60Hz *8.5Hz available for C100C and C100V		
Dynamic Range (with F/1 lens)	L range: -40° C to 120° C H range: 0° C to 500° C		
Video Output	NTSC or PAL composite video		
Digital Output	ITU-R, BT656 video data / 16bit raw data		TBD
Control Interface	RS-232C		
Power supply	12VDC \pm 10%		
Power Consumption (at 20 ° C)	Typ. 4.5W (Max 7W) *without rush current		
Size (mm) (without Lens, protrusion)	62(W) x 46(H) x 50(D)		65(W) x 50(H) x 100(D)
Weight (without lens)	150g		310g
Operating temperature	-30 ° C to +60 ° C (With 4.5 ° C/W heat sink)		-15 ° C to +50 ° C (With 5 ° C/W heat sink)
Case	Without case		With case
Without Lens Model	available	-	

NEC Function Specification

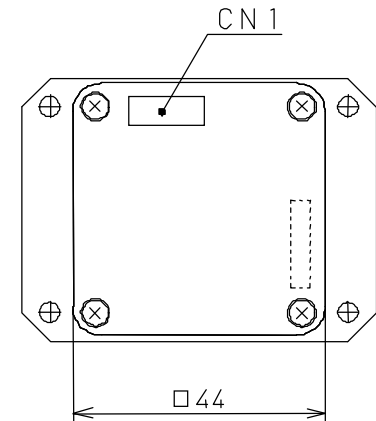
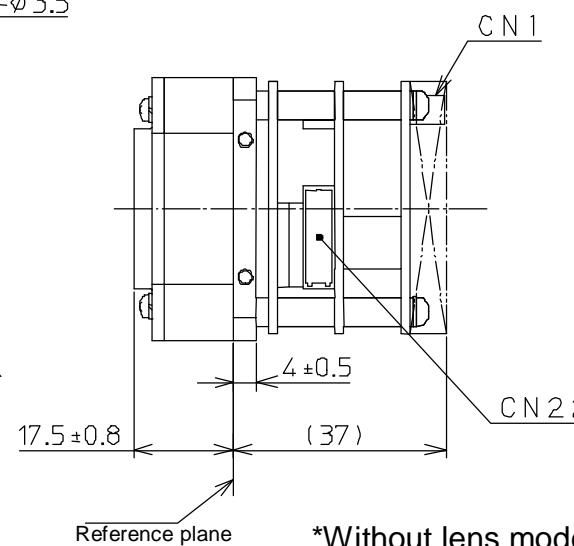
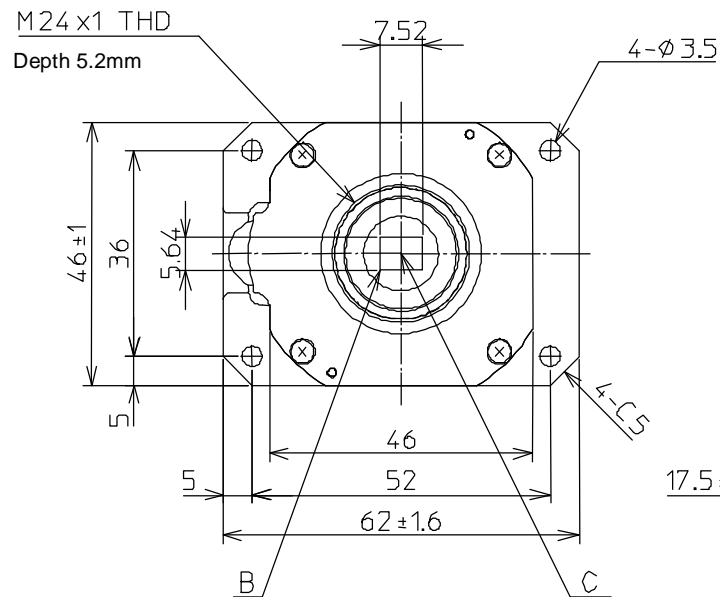
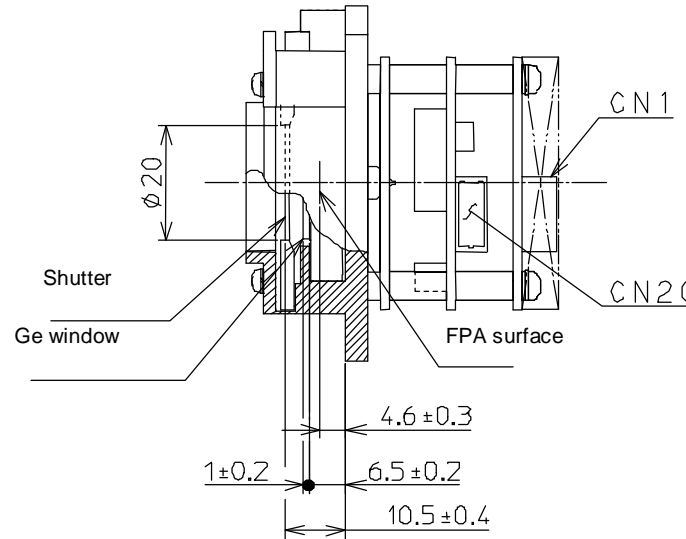
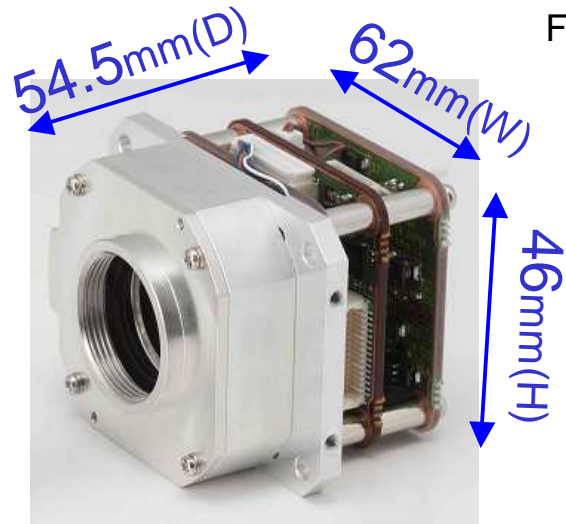
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Item		C100C	C100CT	C100V
Image Quality Improvement	BRIGHTNESS	AUTO, MANUAL(64step)		
	CONTRAST	AUTO, MANUAL(64step)		
	AVERAGING	OFF, L, M, H		
	SHARPNESS	OFF, 1, 2, 3, 4, 5		
	GAMMA Correction	ON, OFF		
Flexible Image Control		GUI		
Display Processing	Polarity	White-hot, Black-hot		
	ZOOM	x1, x2, x4		
	Binarization	available	-	available
	COLOR EMPHASIS	available	-	available
Temperature Measurement		-	available	-
	reading	-	center point	-
	accuracy	-	+15% or +-15°C *at L Range	-
Color Pallet		-	2 pallets, 256 color steps	-
Isotherm		-	available	-

NEC Outline view C100C, CT

NEC Avio Infrared Technologies Co., LTD.

Fig.: C100C-0001N-B

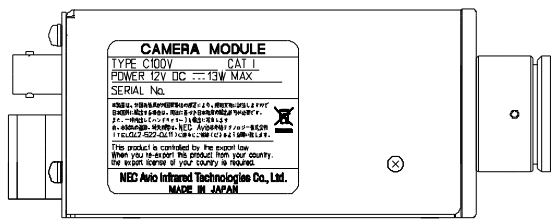
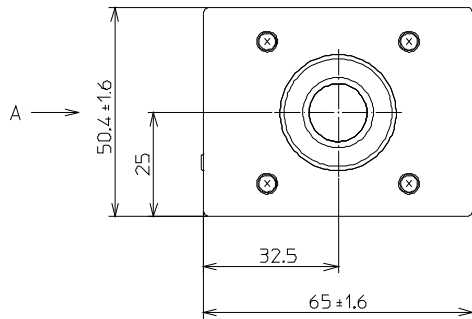
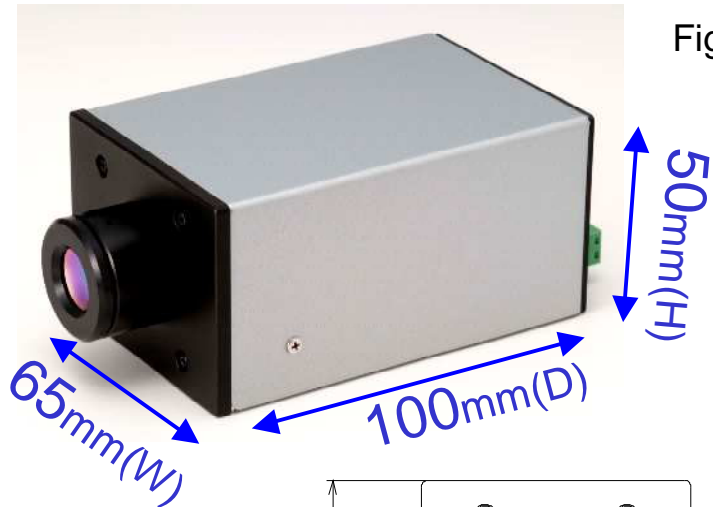


*Without lens model is not available for C100CT.

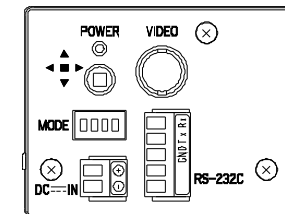
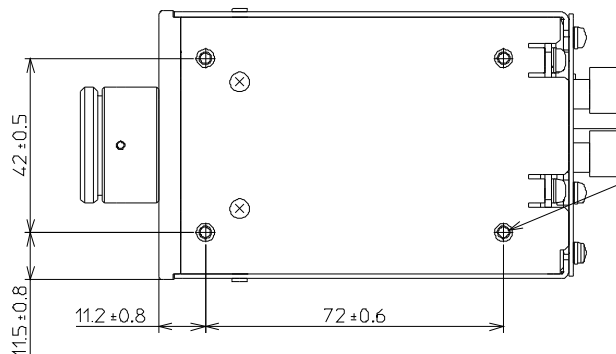
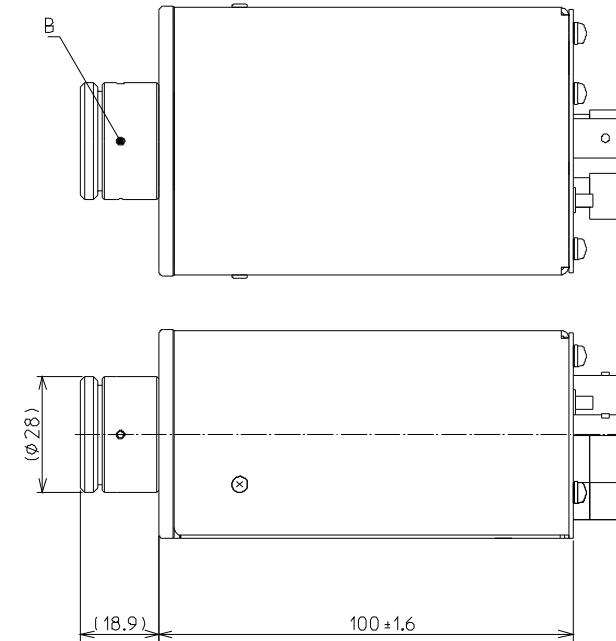
NEC Outline view C100V

NEC Avio Infrared Technologies Co., LTD.

Fig.: C100C-1014N-B



Aから見る



4-M3
ねじ深さ4mm

*Without lens model is not available for C100V.

NEC Lens Lineup

NEC Avio Infrared Technologies Co., LTD.

We provide a wide variety of optional lens from 8mm (Wide) to 50mm (Telephoto).

We can custom-build 100mm lens or others.



Focal Length	F-number	IFOV	FOV	Focus	note
8mm	F=1.0	2.94mrad	50°(H) x37.5°(V)	0.5m~	-
14mm	F=1.4	1.68mrad	30°(H) x22.8°(V)	1m~	-
25mm	F=1.0	0.94mrad	17.1°(H) x12.9°(V)	2m~	athermal
50mm	F=1.0	0.47mrad	8.6°(H) x6.5°(V)	5m~	athermal

NEC Model Number

NEC Avio Infrared Technologies Co., LTD.

We can propose the best solution for your applications.

C100C

Model Number	Focal length (f=)	F-number
C100C-0000N-B	Without lens and mount	
C100C-0001N-B	Without lens, with mount	
C100C-0008N-B	8mm	F=1.0
C100C-1014N-B	14mm	F=1.4
C100C-0025N-B	25mm	F=1.0
C100C-0050N-B	50mm	F=1.0



C100C-0000N-B

C100CT

Model Number	Focal length (f=)	F-number
C100CT0008N-B	8mm	F=1.0
C100CT1014N-B	14mm	F=1.4
C100CT0025N-B	25mm	F=1.0
C100CT0050N-B	50mm	F=1.0



C100C-0001N-B

C100V

Model Number	Focal length (f=)	F-number
C100V-0008N-B	8mm	F=1.0
C100V-1014N-B	14mm	F=1.4
C100V-0025N-B	25mm	F=1.0
C100V-0050N-B	50mm	F=1.0



C100C-0008N-B
C100CT0008N-B

NEC Accessories (Optional)

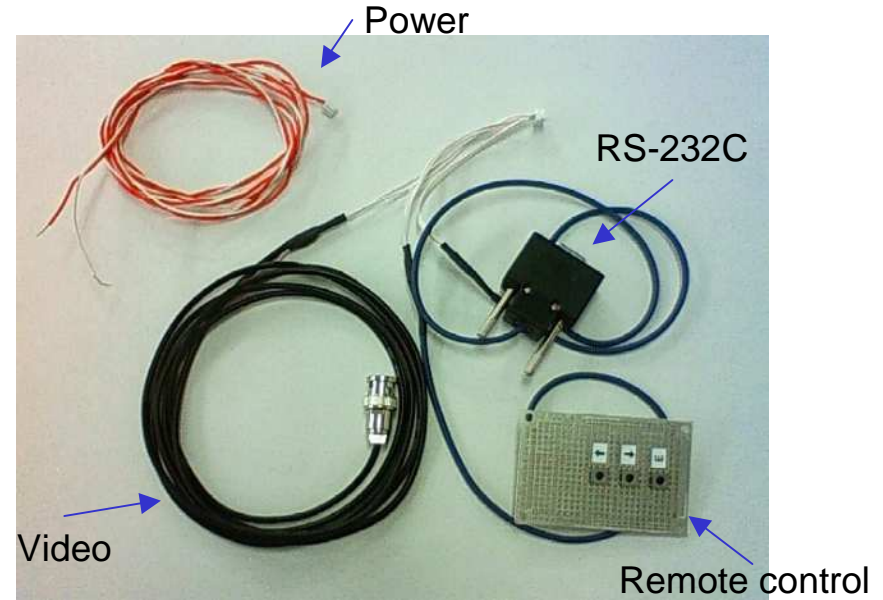
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1, Connection cable

Power cable, RS-232C cable, VIDEO cable, Remote control.

C100C

C100CT

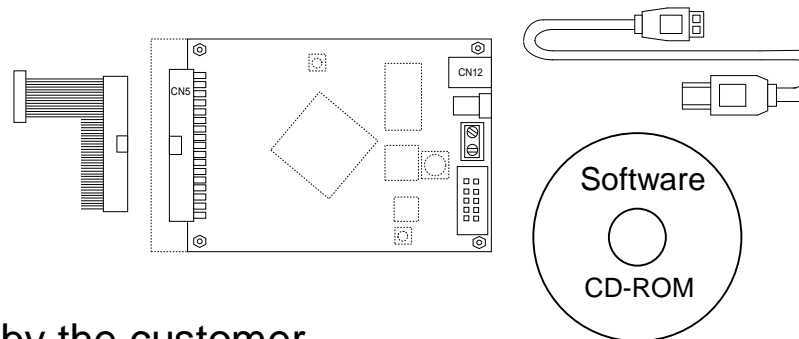


2, Correction tool

- To uniform the sensitivity characteristic of each pixel.
- To displace defective pixel.
- To capture camera image.

C100C

C100CT



*The tool is used when lenses prepare by the customer.

NEC Evaluation Kit (Optional)

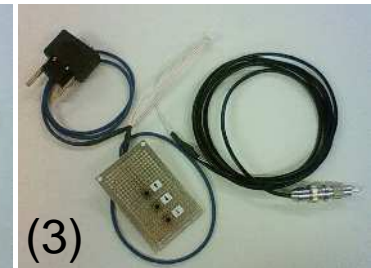
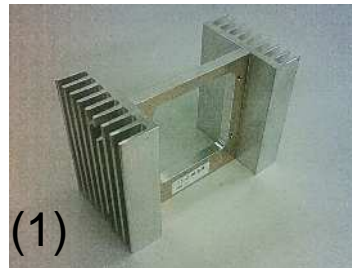
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Evaluation Kit for C100C, C100CT

- (1) Heat sink
- (2) AC adapter and power cable
- (3) Connection cable

C100C

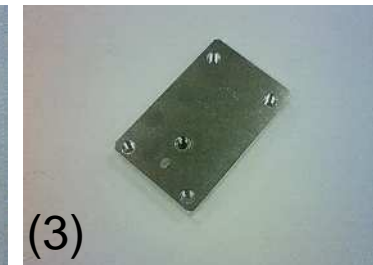
C100CT



Evaluation Kit for C100V

- (1) AC adapter and power cable
- (2) RS-232C cable
- (3) Tripod mounting plate

C100V



NEC Our advantage

NEC Avio Infrared Technologies Co., LTD.

Advantage of NEC group

We can investigate trouble quickly when the problem occurs.

- We are mutually sharing information on the trouble.
- Information for the quality improvement is always shared by “NEC QC news” in NEC group.
- The NEC group is promoting the component standardization.

Stability of each supplier under the NEC group.

- The risk of the halt in production by supplier's management difficulty is low.

Business continuance and Employment stability.

- It can prevent the loss of Expert personnel.
- Expert's skill is shared and succeeded to factory floor.

Advantage of Japan

A military business doesn't influence the production of the product.

- As for export to your country, Japan is more prompter than the United States.

The E/L acquisition is easy.

- As for export to your country, Japan is prompter than USA.

NEC Export Control Policy

NEC Avio Infrared Technologies Co., LTD.

Based on the export control regulations of the Japanese Government, NEC Avio requests Customers (IR camera manufacturers) to follow the policies described below.

1) Limitation of Use

Due to the limitation by Japanese Export Control Laws, NEC Avio's IR Products can basically be used only for IR cameras designed for **commercial and civil use**. NEC Avio's IR Products **cannot be used** for the IR cameras specifically designed for **military organization**. Due to the limitation by License Agreement with Honeywell, NEC Avio's IR Products cannot be used for equipment exclusively used for the **testing and evaluation of systems designed to detect infrared radiation**.

2) End-user control

When Customer sells the product containing NEC Avio's IR Products, Customer is required to **identify the end-user and purpose of use**, and make records. Upon NEC Avio's request, Customer shall provide such record to NEC Avio so that NEC Avio can track down the whereabouts of the each unit of detector.

3) Re-export

When the products containing NEC Avio's IR Products are re-exported to other countries, above conditions are still applied. Re-export shall also be subject to **full compliance with laws and regulations of the customer's country**, solely under the responsibility of the Customer.

NEC Partnership

NEC Avio Infrared Technologies Co., LTD.

We are strong business partner with Customers



***We take action in a sprit of partnership,
on our supply chain and Quality control***

*C100 can greatly help to reduce your cost for development
and to expand your business.*

Thank you !