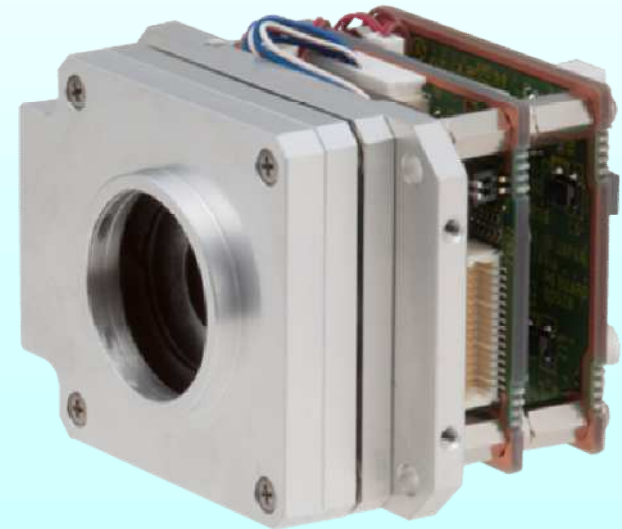


Thermal Imaging Camera Module
C200/C250 series



Product outline

NEC Avio Infrared Technologies Co., LTD.

The C200/C250 series is designed for easy integration into a variety of Infrared imaging cameras and systems.

- 320x240 Uncooled Vox Microbolometer
- Long-Wave Infrared 8-14um
- Advanced 23.5um Pixel Pitch Detector
- Crisp Image; Light, Compact Body
- C200's Flexible Design Allows Rapid Development
- High Quality -Stable Supply- Japan Sourced



C200C-N025



C250C-N125



C200V-N008



C250V-N150

C200/C250 series LINE UP

NEC Avio Infrared Technologies Co., LTD.

Choose from 2 options to
provide the best solution for your application.

<u>C200C</u>	<u>High Sensitivity</u> & <u>High image quality</u>
<u>C200V</u>	C200C plus <u>I/F</u> and <u>Case</u> model
<u>C250C</u>	<u>Low power consumption</u> & <u>Wide operating temperature</u>
<u>C250V</u>	C250C plus <u>I/F</u> and <u>Case</u> model

Key Features

NEC Avio Infrared Technologies Co., LTD.

C200 series

–with new High Sensitivity TEC* Cooled Detector

◆ High Sensitivity **Max NETD 40mk**

*TEC: Thermo Electric Cooler (Peltier Device)

To maximize image quality, it's necessary to dissipate the heat.

C250 series

–with new low power TEC Less Detector

◆ **3W Typical Power**

◆ **-40 to +80 C operating temp range**

Key Features

NEC Avio Infrared Technologies Co., LTD.

For High Performance & Multifunctional Thermal Imaging Cameras

1. Image Quality Improvement Functions

NICE, SHARPNESS, Averaging, Gamma Correction

2. Display Processing Functions

Color Palette, Color Emphasis, ISOTHERM, Flip Image

3. Useful Functions

Privacy Mask, Temperature Measurement, Alarm

4. Wide Variety of Optional Lenses

Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

'NICE' Histogram-based Image Processing

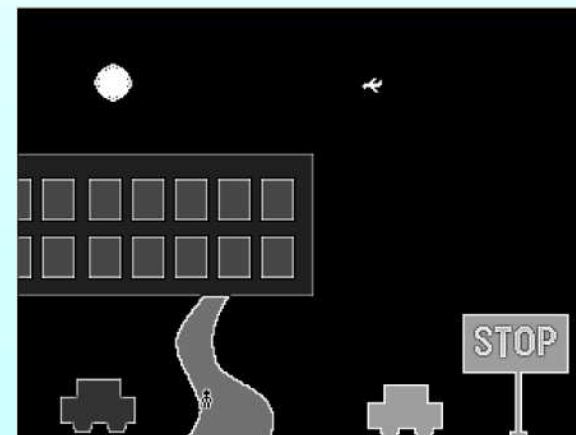
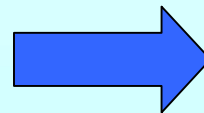
Noble Image Correction Enhancement

NICE provides best contrast image in all weather conditions.

This own histogram processing enhances the image to best condition, even if the object disappeared by the effect of another big energy.



Normal



NICE ON

Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

'SHARPNESS' Edge Enhancement Processing



Normal

Clarifies Image !



SHARPNESS ON !

Image Quality Improvement functions

NEC Avio Infrared Technologies Co., LTD.

'SHARPNESS'



Normal

Makes image more precise !

Increases depth of field: near to far !



SHARPNESS ON !

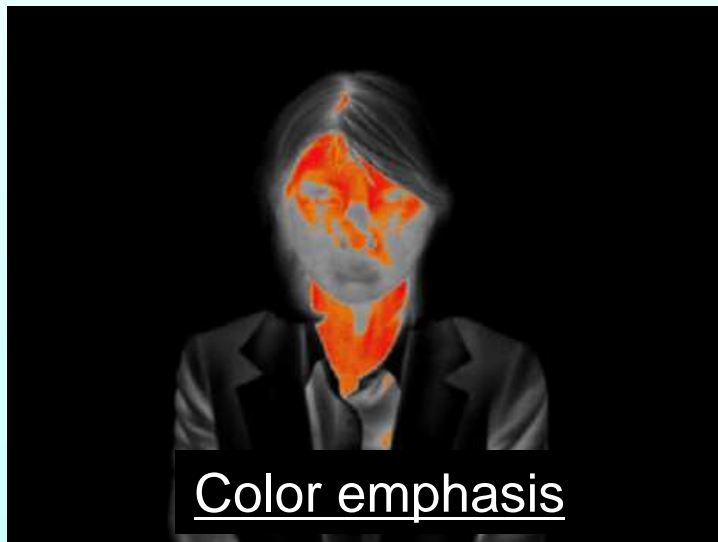
Display Processing functions

NEC Avio Infrared Technologies Co., LTD.

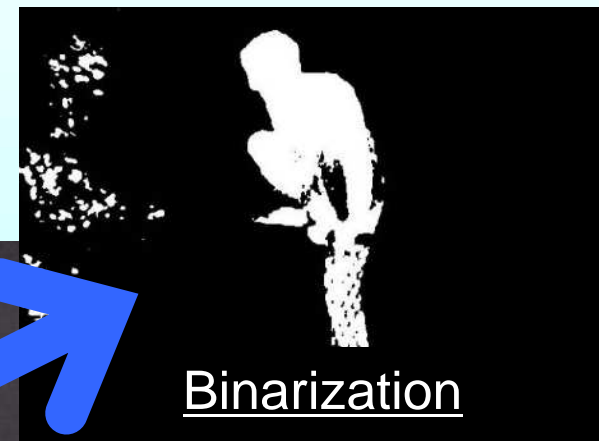
'Color Emphasis'

This function is emphasis of display color. Allows change of the display colors to be greater or less than set value as shown in the sample images below.

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



1. Turn red over threshold.



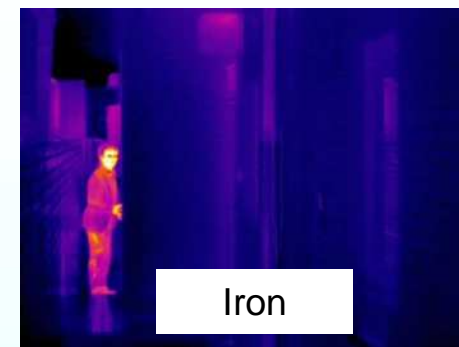
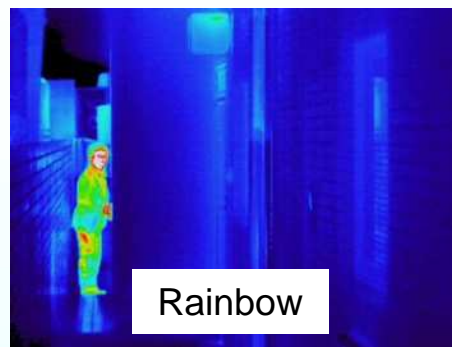
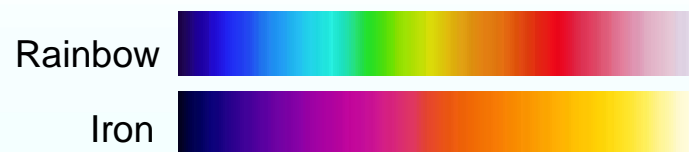
2. Turn binarized image.

Display Processing functions

NEC Avio Infrared Technologies Co., LTD.

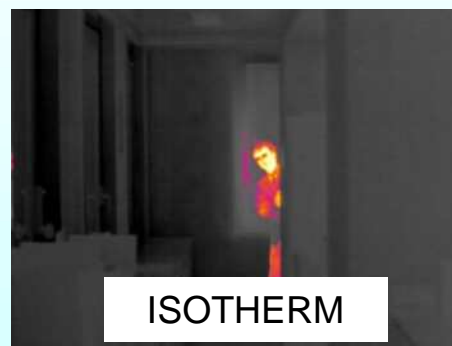
'Color Palette'

2 palettes, 256 color steps



'ISOTHERM'

Turn color over threshold.



'Flip Image'

Flip vertical and horizontal.

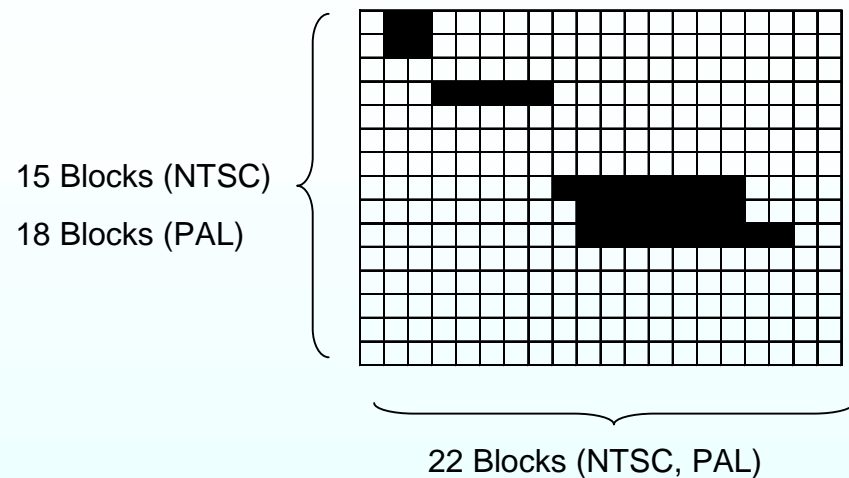


Useful Functions

NEC Avio Infrared Technologies Co., LTD.

‘Masking’

Allows the user to block out a specified area from the image. It can be used for privacy or to offset the influence to an object in the image with high radiation, contrast, or brightness.



‘Alarm’ -ISO temp or brightness level

When the object in the image reaches a preset temperature or brightness level, it outputs an alarm signal.

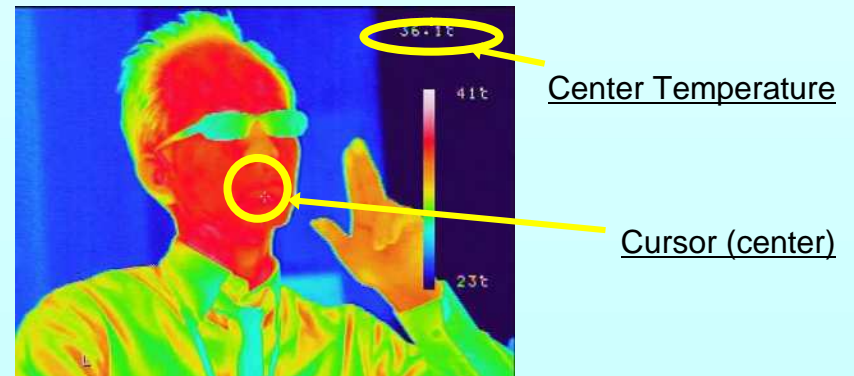
‘Easy temperature measurement’

Reading: Center point

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

(*Environmental temperature -20C ~ +60C,

The temperature accuracy of no lens model is out of the guarantee.)



Wide Variety of Optional Lenses

NEC Avio Infrared Technologies Co., LTD.

Manual Focus Lens

<i>FOV</i>	<i>Focal Length</i>	<i>F-number</i>	<i>Focus</i>	<i>note</i>
50.3°(H) x38.8°(V)	8mm	F=1.0	0.5m~	-
30.8°(H) x23.1°(V)	14mm	F=1.4	1m~	athermal
17.1°(H) x12.9°(V)	25mm	F=1.0	1m~	athermal
17.1°(H) x12.9°(V)	25mm	F=1.4	1m~	athermal
12.3°(H) x9.2°(V)	35mm	F=1.0	2m~	athermal
8.6°(H) x6.5°(V)	50mm	F=1.0	3m~	athermal
8.6°(H) x6.5°(V)	50mm	F=1.4	3m~	athermal



Specifications

NEC Avio Infrared Technologies Co., LTD.

MODEL		C200C	C250C	C100C
Detector		Uncooled Vox microbolometer		Uncooled Vox microbolometer
Array Format		320x240		320x240
TE Cooler		with TEC	TECless	with TEC
Pixel Size		23.5μm		23.5μm
Spectral Range		8 to 14μm		8 to 14μm
NETD (With F/1 Lens)		40mk	80mk	50mk
Sensor Frame Rate		60Hz (8.5Hz available)		60Hz (8.5Hz available)
Dynamic Range (with F/1 lens)		-40°C to 120°C		L range: -40°C to 120°C H range: 0°C to 500°C
Power Supply		12VDC±10%		12VDC±10%
Power Consumption	<i>Typical</i>	4.5W	3.0W	4.5W
	<i>Maximum</i>	7W	6W	7W
Operating Temperature		-30°C to +60°C	-40°C to +80°C	-30°C to +60°C
Size (Without Lens, Protrusion)		62(W) x46(H) x54.5(D) mm	62(W) x46(H) x56.9(D) mm	62(W) x46(H) x54.5(D) mm
Weight (Without Lens)		160g	130g	150g

Specifications and design are subjected to change without notice.

Specifications

NEC Avio Infrared Technologies Co., LTD.

MODEL		C200C	C250C	C100C
Composite Video Output		NTSC or PAL		NTSC or PAL
Digital Output		ITU-R, BT656 video data / 16bit raw data		ITU-R, BT656 video data / 16bit raw data
Ethernet (Option)		ONVIF compliant (MPEG or H264) (August 2011 release)		-
Control Interface		RS-232C or RS-485		RS-232C
Control Protocol	RS-232C	NEC original		NEC original
	RS-485	Pelco-D, NEC original		-
External Trigger I/O	Input	Execute NUC (Non Uniformity Correction)		-
	Output	Alarm signal		-
Alarm Signal Trigger		Temperature (Isotherm) or Brightness (Color Emphasis)		-
Basic Warranty		2 years	1 year	1 year
Case		Case is Optional		Case is Optional
Lens-Less Model		Available		Available

Specifications and design are subjected to change without notice.

Function Specification

NEC Avio Infrared Technologies Co., LTD.

MODEL		C200C	C250C	C100C
Image Quality Improvement	BRIGHTNESS	AUTO, MANUAL(64step)		AUTO, MANUAL(64step)
	CONTRAST	AUTO, MANUAL(64step)		AUTO, MANUAL(64step)
	New Image Processing Function (NICE)	OFF, 1, 2, 3, 4, 5		-
	SHARPNESS	OFF, 1, 2, 3, 4, 5		OFF, 1, 2, 3, 4, 5
	AVERAGING	OFF, L, M, H		OFF, L, M, H
	GAMMA Correction	ON, OFF		ON, OFF
Display Processing	OSD	English, Chinese, Japanese		English
	Polarity	White-hot, Black-hot		White-hot, Black-hot
	Color Palette	MONO, Rainbow, Iron		MONO
	ZOOM	x1.0 to x4.0 (0.1 zoom)		X2, X4
	Flip Image	ON, OFF		-
	Masking	ON, OFF		-
	COLOR EMPHASIS	Off / Over / Under		Off / Over
	ISOTHERM	Off / Over / Under		-
Temperature Measurement		ON (Center Point) , OFF Measurement accuracy: ± 15C or ± 15%		-

Specifications and design are subjected to change without notice.

Model Number

NEC Avio Infrared Technologies Co., LTD.

We can propose the best solution for your applications.

C - N-B

< Lens Type >

0000 : without Lens, Mount

0001 : without Lens, with Mount for F#1.0 Lens

0002 : without Lens, with Mount for F#1.4 Lens

N008 : F#1.0, f=8mm Lens

N025 : F#1.0, f=25mm Lens, Athermal

N035 : F#1.0, f=35mm Lens, Athermal

N050 : F#1.0, f=50mm Lens, Athermal

N114 : F#1.4_ f=14mm Lens, Athermal

N125 : F#1.4_ f=25mm Lens, Athermal

N150 : F#1.4_ f=50mm Lens, Athermal

< Optional Case >

C : without case

V : with case

< TEC / Frame Rate >

200 : TEC Cooled / 60Hz

210 : TEC Cooled / 8.5hz

250 : TEC Less / 60Hz

260 : TEC Less / 8.5Hz

C250C-0000



C250C-0001



C250C-0002



C250V-N008



C250C-N035



C250C-N150



Model Number List

NEC Avio Infrared Technologies Co., LTD.

Model	Lens			Hz
	Focal length (f=)	F-number	FOV(H)	
C200C-0000N-B	Without lens, mount			60Hz
C200C-0001N-B	Without lens, with mount 1			
C200C-0002N-B	Without lens, with mount 2			
C200C-N008N-B	8mm	F=1.0	50°(H)	
C200C-N025N-B	25mm	F=1.0	17.1°(H)	
C200C-N035N-B	35mm	F=1.0	12.3°(H)	
C200C-N050N-B	50mm	F=1.0	8.6°(H)	
C200C-N114N-B	14mm	F=1.4	30°(H)	
C200C-N125N-B	25mm	F=1.4	17.1°(H)	
C200C-N150N-B	50mm	F=1.4	8.6°(H)	
C200V-N008N-B	8mm	F=1.0	50°(H)	
C200V-N025N-B	25mm	F=1.0	17.1°(H)	
C200V-N035N-B	35mm	F=1.0	12.3°(H)	
C200V-N050N-B	50mm	F=1.0	8.6°(H)	
C200V-N114N-B	14mm	F=1.4	30°(H)	
C200V-N125N-B	25mm	F=1.4	17.1°(H)	
C200V-N150N-B	50mm	F=1.4	8.6°(H)	
C210C-0000N-B	Without lens, mount			8.5Hz
C210C-0001N-B	Without lens, with mount 1			
C210C-0002N-B	Without lens, with mount 2			
C210C-N008N-B	8mm	F=1.0	50°(H)	
C210C-N025N-B	25mm	F=1.0	17.1°(H)	
C210C-N035N-B	35mm	F=1.0	12.3°(H)	
C210C-N050N-B	50mm	F=1.0	8.6°(H)	
C210C-N114N-B	14mm	F=1.4	30°(H)	
C210C-N125N-B	25mm	F=1.4	17.1°(H)	
C210C-N150N-B	50mm	F=1.4	8.6°(H)	
C210V-N008N-B	8mm	F=1.0	50°(H)	
C210V-N025N-B	25mm	F=1.0	17.1°(H)	
C210V-N035N-B	35mm	F=1.0	12.3°(H)	
C210V-N050N-B	50mm	F=1.0	8.6°(H)	
C210V-N114N-B	14mm	F=1.4	30°(H)	
C210V-N125N-B	25mm	F=1.4	17.1°(H)	
C210V-N150N-B	50mm	F=1.4	8.6°(H)	

Model	Lens			Hz
	Focal length (f=)	F-number	FOV(H)	
C250C-0000N-B	Without lens, mount			60Hz
C250C-0001N-B	Without lens, with mount 1			
C250C-0002N-B	Without lens, with mount 2			
C250C-N008N-B	8mm	F=1.0	50°(H)	
C250C-N025N-B	25mm	F=1.0	17.1°(H)	
C250C-N035N-B	35mm	F=1.0	12.3°(H)	
C250C-N050N-B	50mm	F=1.0	8.6°(H)	
C250C-N114N-B	14mm	F=1.4	30°(H)	
C250C-N125N-B	25mm	F=1.4	17.1°(H)	
C250C-N150N-B	50mm	F=1.4	8.6°(H)	
C250V-N008N-B	8mm	F=1.0	50°(H)	
C250V-N025N-B	25mm	F=1.0	17.1°(H)	
C250V-N035N-B	35mm	F=1.0	12.3°(H)	
C250V-N050N-B	50mm	F=1.0	8.6°(H)	
C250V-N114N-B	14mm	F=1.4	30°(H)	
C250V-N125N-B	25mm	F=1.4	17.1°(H)	
C250V-N150N-B	50mm	F=1.4	8.6°(H)	
C260C-0000N-B	Without lens, mount			8.5Hz
C260C-0001N-B	Without lens, with mount 1			
C260C-0002N-B	Without lens, with mount 2			
C260C-N008N-B	8mm	F=1.0	50°(H)	
C260C-N025N-B	25mm	F=1.0	17.1°(H)	
C260C-N035N-B	35mm	F=1.0	12.3°(H)	
C260C-N050N-B	50mm	F=1.0	8.6°(H)	
C260C-N114N-B	14mm	F=1.4	30°(H)	
C260C-N125N-B	25mm	F=1.4	17.1°(H)	
C260C-N150N-B	50mm	F=1.4	8.6°(H)	
C260V-N008N-B	8mm	F=1.0	50°(H)	
C260V-N025N-B	25mm	F=1.0	17.1°(H)	
C260V-N035N-B	35mm	F=1.0	12.3°(H)	
C260V-N050N-B	50mm	F=1.0	8.6°(H)	
C260V-N114N-B	14mm	F=1.4	30°(H)	
C260V-N125N-B	25mm	F=1.4	17.1°(H)	
C260V-N150N-B	50mm	F=1.4	8.6°(H)	

Mount & Lens

NEC Avio Infrared Technologies Co., LTD.

F=1.0 Lens Family



1. Mount(1) for F=1.0 Lens

2. f=8mm, F=1.0 Lens

3. f=25mm, F=1.0 Lens

4. f=35mm, F=1.0 Lens

5. f=50mm, F=1.0 Lens

F=1.4 Lens Family



1. Mount(2) for F=1.4 Lens

2. f=14mm, F=1.4 Lens

3. f=25mm, F=1.4 Lens

4. f=50mm, F=1.4 Lens

C200V / C250V Interface

NEC Avio Infrared Technologies Co., LTD.

C200V/C250V has case and interface for ease of integration.



Line Indicator

Operation Key

Power input connector

BNC connector

RS-485/IO connector



RS-232C connector

Accessories (Optional)

NEC Avio Infrared Technologies Co., LTD.

1. Connection cable for 232C

Model Name: C200-380

RS-232C cable (D-Sub 9 pin),
VIDEO cable (BNC),
Remote control (5 Button Key).



2. Connection cable for 485

Model Name: C200-381

RS-485 cable (without connector),
VIDEO cable (BNC),
Remote control (5 Button Key).

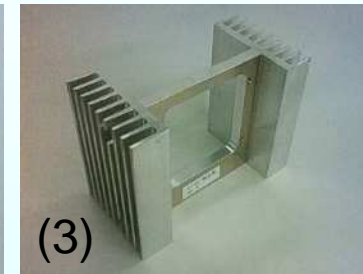
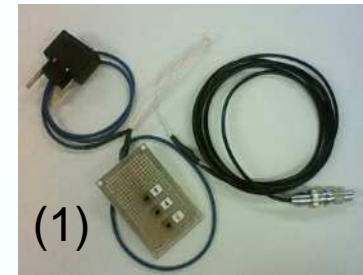
Evaluation Kit (Optional)

NEC Avio Infrared Technologies Co., LTD.

Evaluation Kit for C200C, C250C

Model Name: C200C-Ekit

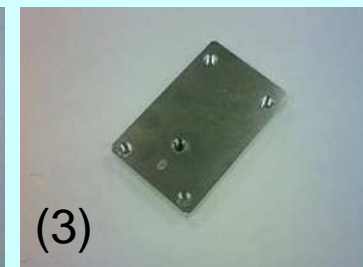
- (1) Connection cable (C200-380 or C200-381)
- (2) AC adapter and power cable
- (3) Heat sink



Evaluation Kit for C200V, C250V

Model Name: C200V-Ekit

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



Our advantage

NEC Avio Infrared Technologies Co., LTD.

Advantage of NEC group

We can investigate trouble quickly when the problem occurs.

- We mutually share information quality issues.
- Information for quality improvement is always shared by “NEC QC news” in NEC group.
- The NEC group is promotes 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 distributed to factory floor.

Advantage of Japan

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.

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.

We are strong business partner with Customers



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