

Infrared Thermal Imaging Camera

High Resolution · Multi-purpose Model

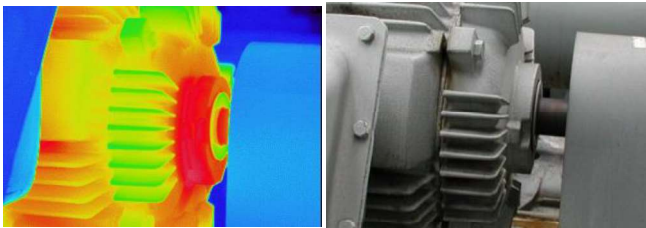
InfReC R450 Series

High resolution, high sensitivity, high precision !
 Versatile model which is useful in wide variety of scenes from structure diagnosis to research of micro component.

High performance
 at affordable price



Diagnosis of structure (Bridge)



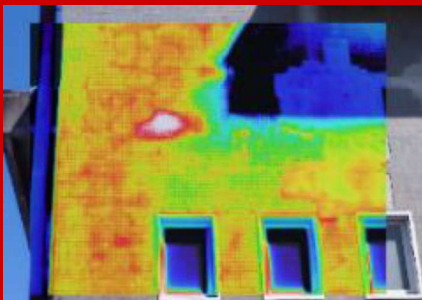
PPM (Motor bearing, etc)



Feature 1

[Fine image for wider area]

FOV : 24°×18°
 Pixels : 480×360
 Spatial resolution : 0.87mrad

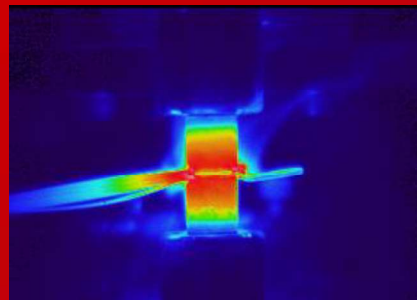


Building diagnosis

Feature 2

[Wide measurement range]

Room temp. to 1500°C
 Changing temperature of object
 can be measured in one range
 without range change
 ※R450Pro

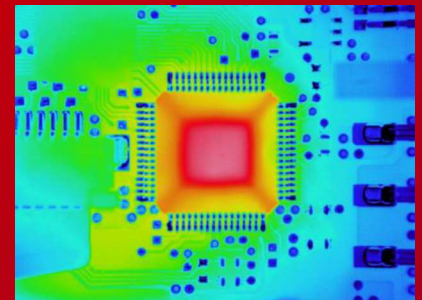


Observation of
 heat storage/heat release

Feature 3

**[Close-up image
 with high resolution !]**

960×720 pixels ※SR mode
 Micro object can be measured
 without optional lens



Thermal test of device

Composite mode support ease of viewing

Easy switch with one button



Side-by-side



Picture-In-Picture (transparency changeable)



Fusion (transparency changeable)

Automatic Movie Recording Feature Built In(R450Pro)

- Recording movie connected PC automatically by external trigger input to R450
- Data recording linked with test equipment and filed facility is available without configuring I/O system



Measuring Distance and F.O.V.

Field of View and Spatial Resolution are the same magnification with measuring distance.

Lens Type		2x Telephoto Lens	Normal Lens	2x Wide Angle Lens
L=1m	Field of View(H)×(V)	21×16cm	43×32cm	86×64cm
	Spatial Resolution	Normal Mode	0.45mm	0.9mm
Super Resolution (SR) mode		0.3mm	0.6mm	1.3mm

Options

Options/Model	Specification/remarks
Lens	2x Telephoto lens, IRL-TX02C-B 12" (H) x 9" (V) 2x Wide Angle Lens, IRL-WX02C-B 48" (H) x 36" (V) 52 μm Closeup Lens, IRL-C052UC 25mm(H) x 18.7mm(V), Working Distance 56mm
Accessory	AC adaptor, RC60G-09D-110V(US)/110V/220V 110V(US), 110V or 220V
	Rechargeable Battery Pack, 2UR18650F 2500mAh Driving Hours : 2.5 Hours (typical)
	Battery Charger, NC-LSC05-110V(US)/110V/220V 110V(US), 110V or 220V

Listed specifications, appearance and design are subject to change without notice. Company and commodity names are trade names or registered trade marks of each company. NIPPON AVIONICS Co., Ltd. will not be responsible for any damage of infrared detectors due to incoming strong light (e.g. laser) through lens(es). This product is subject to Japanese Export Control Law. Depending on its destination, prior assessment and authorization may be required. When exporting from country of initial purchase destination, please be sure to follow that country's export regulations as it may require an export permit beforehand.

Specification

Feature	R450Pro	R450Pro-D	R450	R450-D	
Basic Performance	Infrared Detector: Uncooled Focal Plane Array (Microbolometer)				
Spectral Range	8 to 14 μm				
Measuring Range	-40 to 1500°C			-40 to 650°C	
Sensitivity (NETD)	0.025°C at 30°C (with S/N improvement)				
Accuracy	±1°C *1				
Frame Rate	40Hz	8.0Hz	40Hz	8.0Hz	
Detector Pixels	480(H) × 360(V) pixels				
Recording Pixels	Standard mode: 480(H) × 360(V) , Super Resolution (SR) mode: 960(H) × 720(V) *2				
Field of View	24(H) × 18(V) (with standard lens)				
Spatial Resolution	Standard mode: 0.87mrad , Super Resolution (SR) mode: 0.58mrad equivalent *3				
Focal Distance	10cm to infinity (with standard lens) *4				
Focus	Auto/ Manual				
Auto Function	Auto Scale, Auto Focus, Full Auto				
Color Palettes	7 palettes (Rainbow, Brightness, Hot-white, Hot-black, etc.)				
Gradation	256 / 32 / 16 / 8 grade				
Visible Camera	CMOS camera 5M pixels				
Visible/Thermal Fusion	Side-by-side, Fusion (transparency changeable), Picture-In-Picture (transparency changeable)				
Display Functions	1 to 8 times continuous zoom (with display positioning scroll), Grid Overlay, 9 images multi-display (replay mode)				
Image Quality Improvement	Denoising, Averaging (with ghost rejection), Edge enhancement				
Point Temperature	10 Movable Points, Temperature search: MAX/MIN x 1 each, Delta T				
Temperature Display in Assigned Region	MAX, MIN and AVG in BOX (Up to 5 boxes) N/A				
Line Profile	Horizontal, Vertical, Horizontal & Vertical				
Alarm Function	Alarm Display, Alarm Sound, Color Alarm, Alarm Recording, Alarm Signal Output N/A				
Temperature Correction	Emissivity, Environmental/Background, Distance				
Emissivity	Multi-point Correction, Emissivity Table				
	Emissivity Reverse Calculation			N/A	
	Drift Stabilizer			N/A	
Storage Device	SD card, Conforms to SDHC				
Data Format	Still image : JPEG with temperature data, 14bit (with visible image) Movie : SVX file (Dedicated format)				
Data Storage	Still image, JPEG with temperature data, 14bit. Recorded with visible image				
Storage & Output	Super Resolution (SR)	Yes			
	Quick Panorama	Horizontal equivalent to 75 / Vertical equivalent to 56			
	SD Movie Recording	Max 5Hz	Max 4Hz	N/A	
	Interval Recording	3 sec to 60 min interval, with Visible image recorded			
	External Trigger Recording	Yes N/A			
	Voice Recording	30sec Recording, replay per a Thermal image			
	Text Annotation	Annotate up to 128 Characters per a Thermal Image. Characters imported from SD Card			
	Interface	USB2.0			
		Mass Storage	Yes		
		Movie Data Transfer	Thermal image: Max: 40Hz, Recorded with visible image *5	Thermal image: Max: 8Hz, Recorded with visible image *5	Thermal image: Max: 40Hz, Recorded with visible image *5
External Trigger Input		Automatic recording function by external trigger input N/A			
Video Output	NTSC / PAL Switchable				
Alarm Output	Contact Signal, No Voltage N/A				
External Trigger Input	Pulse Signal N/A				
Display	3.5" LCD Monitor (with tilt and brightness adjustment), Color View Finder (with tilt adjustment)				
Auxiliary	Laser Pointer (Red, class 2, IEC 60825-1 2007/2014), LED Light, Remote Controller				
Environment Resistance	Operating Temperature & Humidity	-15°C to 50°C, 90%RH (non-condensing)			
	Storage Temperature & Humidity	-40°C to 70°C, 90%RH (non-condensing)			
	Vibration & Shock	29.4m/sec ² (3G), 294m/sec ² (30G)			
	EMC	Conform to CE regulations (Class A)			
	Dust & splash proof	Protection class IP54 equivalent			
Battery Operation	2.5hours (Typ), Rechargeable Li-Ion battery				
AC Power	100V ~ 220V AC, 50/60Hz				
Dimensions	Approx. H121mm×W105mm×D195mm (excluding projection)				
Weight	Approx. 1.3kg (including Battery Pack)				
Standard Accessories	Wired remote Controller x 1, SD Card x 1, USB Cable x 1, Neck Strap x 1, Grip Belt x 1, Rechargeable Li-Ion Battery x 1, Software x 1, Operation Manual x 1, and Carrying Case x 1				
Standard Software	InfReC Analyzer NS9500Professional		InfReC Analyzer NS9500Standard *6		

*1 Only the Range 1 at the environmental temperature from 20 to 30°C (In other condition, it is ±2°C or ±2%)
*2 Still Image Only
*3 This increased resolution results from detecting characteristic within all frames acquired by the SR process and removing such effects as those caused by hand vibration
*4 For temperature accuracy : 30cm to infinity
*5 Thermal image only when image transfer speed at 40Hz
*6 In order to transfer thermal image movie data by R450 /R450-D, you need to upgrade to " InfReC Analyzer NS9500 Professional " (optional software).

Power Kit

R450 series is not including AC adapter, battery charger and AC cables. Please order below Power Kit With R450 series main unit.

Item	Model	Specification/remarks
Power Kit	PKA-110VGM(US)	For 100 to 120V region (US)
	PKA-110VGM	For 100 to 120V region (Taiwan)
	PKA-220VGM	For 220 to 240V region (Europe and Asia)

AC adapter x 1, battery charger x 1 and AC cable x 2

NIPPON AVIONICS CO., LTD.

Overseas Sales Department
Industrial Electronic Products Sales Division
Shin-Yokohama Plant Shimamura-Building, 4475,
Ikonobe-cho, Tsuzuki-ku, Yokohama-shi,
224-0053, Japan
TEL: +81-45-930-3596 FAX: +81-45-930-3597
E-mail : product-irc-e@ml.avio.co.jp

<http://www.avio.co.jp/english/>

WARNINGS & CAUTIONS

Before using this product, please carefully read the provided Operation Manual "WARNINGS" & "CAUTIONS" section to ensure proper operation. Please do not place the product in high temperature, high humidity or high inert gas environments.

Distributor:
Ito Group Holdings Pte. Ltd. (Singapore) / 株式会社イトー (Japan)

Email: howchoon.lee@ito-group.com
Phone: +65-6200-3217, Mobile: +65-9617-0840, Mr. How Choon Lee (Singapore)

Eメール: ogura@ito-group.com
電話 : 03-3668-3222、携帯 : 080-1289-2509、担当 : 小椋(Japan)