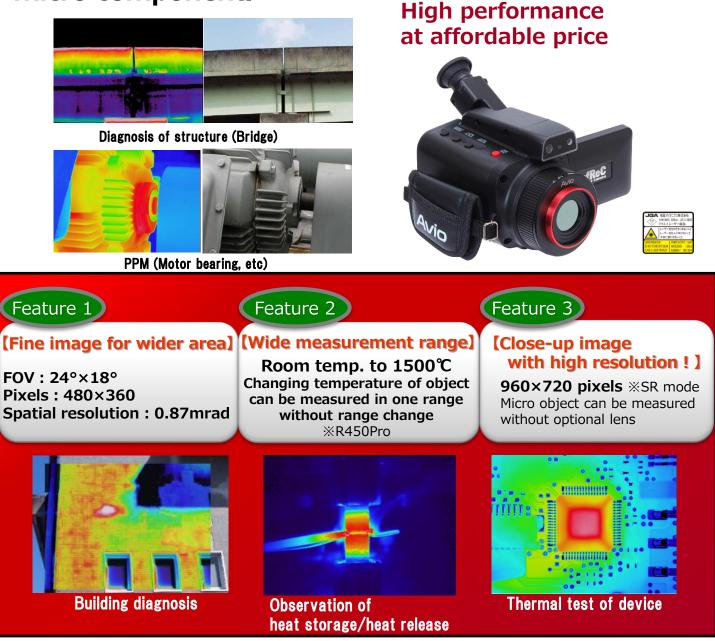


Infrared Thermal Imaging Camera

High Resolution · Multi-purpose Model InfReC R450 Series



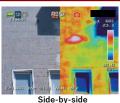
High resolution, high sensitivity, high precision ! Versatile model which is useful in wide variety of scenes from structure diagnosis to research of micro component.

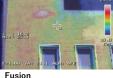




Composite mode support ease of viewing







1222

(transparency changeable)

Automatic Movie Recording Feature Built In(R450Pro)

Picture-In-Picture

(transparency changeable)

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
	Field of View(H)×(V)		21×16cm	43×32cm	86×64cm
L=1m	Spatial Resolution	Normal Mode	0.45mm	0.9mm	1.8mm
		Super Resolution	0.3mm	0.6mm	1.3mm

Options

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

Specification

	Feature		R450Pro	R450Pro-D	R450	R450-D				
	Infrared Detector		Uncooled Focal Plane A	rray (Microbolometer)						
	Spectral Range		8 to 14 μ m							
	Measuring Range		-40 to 1500°C -40 to 650°C							
_ 1	Sensitivity (NETD)		0.025 C at 30 C (with S	0.025°C at 30°C (with S/N improvement)						
Basic Performance	Accura	acv		±1°C *1						
	Frame			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							
00	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 Pallets		7 pallets (Rainbow, Brightness, Hot-white, Hot-black, etc.)							
Beu	Gradation		256 / 32 / 16 / 8 grade							
Image Display	Visible Camera		CMOS camera 5M pixels	1						
ispla	Visible/Thermal Fusion		Side-by-side, Fusion (t	ransparency changeable)	, Picture-In-Picture (t	ransparency changeable)				
a l	Display Functions			zoom (with display position	oning scroll), Grid Over	lay, 9 images multi-display				
			(replay mode)							
_	Image Quality Improvement			Denoising, Averaging (with ghost rejection), Edge enhancement						
		Temperature			perature search: MAX/MI					
3			ay in Assigned Region	MAX, MIN and AVG in B		N/A				
leas	Line P	rofile		Horizontal, Vertical, Hor	izontal & Vertical					
s.	Alarm	Function		Alarm Display, Alarm So	und, Color Alarm, Alarm F	Recording.				
2	Alarini	runcuon		Alarm Signal Output	Alarm Signal Output N/A					
Inot	Tempe	rature Corre	oction	Emissivity, Environmental/Background, Distance						
Measuring Functions		Emissivity		Multi-point Correction, Emissivity Table						
"		Emissivity		Emissivity Reverse Calc	ulation	N/A				
		Drift Stabil	zer	Yes		N/A				
	Storag	e Device		SD card, Conforms to SDHC						
1	Data F	ormat		Still image : JPEG with temperature data,14bit(with visible image)						
				Movie : SVX file (Dedicated format)						
ſ	Data Storage Super Resolution (SR)			Still image(JPEG with temperature data,14bit), Recorded with visible image						
		Quick Pane		Yes						
				Horizontal equivalent to 75°/ Vertical equivalent to 56°						
		SD Movie I		Max 5Hz Max 4Hz N/A						
		Interval Re			with Visible image record					
Stor			igger Recording		Yes N/A					
age		Voice Reco			30sec Recording, replay per a Thermal image					
		Text Annotation		Annotate up to 128 Cha	racters per a Thermal Ima	ge. Characters importe	Annotate up to 128 Characters per a Thermal Image. Characters imported from SD Card			
°										
& Outp		Text Annot USB2.0								
& Output			Mass Storage	Yes	-	-				
Storage & Output	4			Thermal image: Max: 40Hz, Recorded with	Thermal image: Max: 8Hz, Recorded with	40Hz, Recorded with	Thermal image: Max:8Hz, Recorded with visible imag			
& Output	Interface		Mass Storage	Thermal image: Max:	8Hz, Recorded with visible image *5					
& Output	Interface	USB2.0	Mass Storage Movie Data Transfer External Trigger Input	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input	8Hz, Recorded with visible image *5 ction by external trigger	40Hz, Recorded with visible image *5	Recorded with visible imag			
& Output	Interface	USB2.0 Video Outp	Mass Storage Movie Data Transfer External Trigger Input ut	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable	8Hz, Recorded with visible image *5 ction by external trigger	40Hz, Recorded with visible image *5 N/A	Recorded with visible image			
& Output	Interface	USB2.0 Video Outp Alarm Outp	Mass Storage Movie Data Transfer External Trigger Input ut ut	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Volta	8Hz, Recorded with visible image *5 ction by external trigger	40Hz, Recorded with visible image *5 N/A N/A	Recorded with visible imag			
& Output	_	USB2.0 Video Outp Alarm Outp External Tr	Mass Storage Movie Data Transfer External Trigger Input ut ut	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Volta	8Hz, Recorded with visible image *5 ction by external trigger age	40Hz, Recorded with visible image *5 N/A N/A N/A	Recorded with visible imag *5			
& Output	Display	USB2.0 Video Outp Alarm Outp External Tr	Mass Storage Movie Data Transfer External Trigger Input ut ut	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with	8Hz, Recorded with visible image *5 ction by external trigger nge	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible imag *5 r (with tilt adjustment)			
& Output	_	USB2.0 Video Outp Alarm Outp External Tr	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input	Thermal image: Max: 40Hz, Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red, clas	BHz, Recorded with visible image *5 ction by external trigger age tilt and brightness adjustr s 2, IEC 60825-1 2007/2	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible imag *5 r (with tilt adjustment)			
& Output	Display	USB2.0 Video Outp Alarm Outp External Tr ry Operating	Mass Storage Movie Data Transfer External Trigger Input ut gger Input Temperature & Humidity	Thermal image: Max: 40Hz, Recorded with visible image 45 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. clas -15" C to to "C, 90%R	8Hz, Recorded with visible image *5 ction by external trigger ge tilt and brightness adjustrr s 2, IEC 60825-1 2007/2 H (non-condensing)	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible imag *5 r (with tilt adjustment)			
& Output	Display	USB2.0 Video Outp Alarm Outp External Tr ry Operating Storage Te	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input Femperature & Humidity moerature & Humidity	Thermal image: Max: 40Hz, Recorded with visible image +5 Automatic recording fun input Orntact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red, clas -15" C to 50" C, 90NR -40" C to 70" C, 90NR	8Hz, Recorded with visible image +5 tion by external trigger a ge bit and brightness adjustr s 2, IEC 60825-1 2007/2 H (non-condensing) H (non-condensing)	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible ima, *5 r (with tilt adjustment)			
& Output	Display	USB2.0 Video Outp Alarm Outp External Tr ry Operating Storage Te Vibration &	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input Femperature & Humidity moerature & Humidity	Thermal image: Max: 40Hz, Recorded with visible image 45 Automatic recording fun input NTSC / PAL Switchable Contact Signal .No Votz Pulse Signal 3.5 ^{°°} LCD Monitor (with Laser Pointer (Red. clas -15 ^{°°} C to 50 ^{°°} C, 90HR 29.4m/sec [°] (3G), 294m	8Hz, Recorded with visible image *5 tion by external trigger age bilt and brightness adjustrn 2 . IEC 60825-1 2007/2 H (non-condensing) H (non-condensing) //sec ² (30G)	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible imag *5 r (with tilt adjustment)			
	Display	USB2.0 Video Outp Alarm Outp External Tr ry Operating Storage Te	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input Femperature & Humidity moerature & Humidity	Thermal image: Max: 40Hz, Recorded with visible image +5 Automatic recording fun input Orntact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red, clas -15" C to 50" C, 90NR -40" C to 70" C, 90NR	8Hz, Recorded with visible image *5 tion by external trigger age bilt and brightness adjustrn 2 . IEC 60825-1 2007/2 H (non-condensing) H (non-condensing) //sec ² (30G)	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible imag *5 r (with tilt adjustment)			
	Display	USB2.0 Video Outp Alarm Outp External Tr ry Operating Storage Te Vibration &	Mass Storage Movie Data Transfer External Trigger Input ut ut Temperature & Humidity Penerature & Humidity Shock	Thermal image: Max: 40Hz, Recorded with visible image 45 Automatic recording fun input NTSC / PAL Switchable Contact Signal .No Votz Pulse Signal 3.5 ^{°°} LCD Monitor (with Laser Pointer (Red. clas -15 ^{°°} C to 50 ^{°°} C, 90HR 29.4m/sec [°] (3G), 294m	8Hz, Recorded with visible image 45 ction by external trigger in ge Litt and brightness adjustrn s 2, IEC 60825-1 2007/2 H (non-condensing) H (non-condensing) H (non-condensing) sec ² (30G)	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible ima, *5 r (with tilt adjustment)			
	Display Auxilia Resistance	USB2.0 Video Outp Alarm Outp External Tr (ry Operating Storage Te Vibration & EMC	Mass Storage Movie Data Transfer External Trigger Input ut ut Temperature & Humidity Penerature & Humidity Shock	Thermal image: Max: 40Hz, Record with visible image +5 Automatic recording fun input NTSG / PAL Switchable Contact Signal. No Voltz Pulse Signal 5.5" LCD Monitor (with Leser Pointer (Red. class -40" C to 30" C, 90hR -40" C to 70" C, 90hR 29.4m/sec ² (3G), 294m/ 29.4m/sec ² (3G), 294m/	8Hz, Recorded with visible image #5 ction by external trigger i ge tilt and brightness adjustr s 2. IEC 60825-1 2007/2 H (non-condensing) H (non-condensing) H (non-condensing) see ² (30G) see ² (30G) uivalen	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible ima, *5 r (with tilt adjustment)			
	Display Auxilia Resistance	USB2.0 Video Outp Alarm Outp External Tr ry Operating Storage Te Vibration & EMC Dust & splay	Mass Storage Movie Data Transfer External Trigger Input ut ut Temperature & Humidity Penerature & Humidity Shock	Thermal image: Max: OHtz: Recorded with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. class -40" C to 70" C, 90%R -40" C to 70" C, 90%R 29.4m/sec ² (30), 294m/ Protection class IP54 ec	8Hz, Recorded with visible image 45 ction by external trigger in ge it and brightness adjust a 2, IEC 60825-1 2007/2 H (non-condensing) //sec ² (30G) u/sec ² (30G) u/seble Li-Ion battery	40Hz, Recorded with visible image *5 N/A N/A N/A nent), Color View Finder	Recorded with visible ima *5 r (with tilt adjustment)			
	Display Auxilian Resistance Batter	Video Outp Alarm Outp External Tr ry Operating Storage Te Vibration & EMC Dust & splay y Operation wer	Mass Storage Movie Data Transfer External Trigger Input ut ut Temperature & Humidity Penerature & Humidity Shock	Thermal image: Max: Hother, Recorded with visible image +5 Automatic recording fun input NTSC / PAL Switchable Contact Signal No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. class -15" C to 50" C, 90%R -40" C to 70" C, 90%R	8Hz, Recorded with visible image 45 ction by external trigger in ge it and brightness adjust a 2, IEC 60825-1 2007/2 H (non-condensing) //sec ² (30G) u/sec ² (30G) u/seble Li-Ion battery	40Hz, Recorded with visible image +5 N/A N/A N/A N/A N/A D14), LED Light, Remot	Recorded with visible ima, *5 r (with tilt adjustment)			
	Display Auxilia Resistance Batter AC Po Dimens	Video Outp Alarm Outp External Tr / Voperating Storage Te Vibration & EMC Dust & splay y Operation wer sions	Mass Storage Movie Data Transfer External Trigger Input ut ut Temperature & Humidity Penerature & Humidity Shock	Thermal image: Max: OHtz, Record with visible image *5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. clas -40° C to 70° C. 90%R -40° C to 70° C. 90%R 29.4m/sec ² (30). 294m Protection class IP54 ec 25.hours (Typ). Recharg 100V - 220V AC, 50/6 Approx. H121mm × W102	[8Hz, Recorded with visible image +5 ction by external trigger inge bill and brightness adjustr s 2. IEC 60825-1 2007.20 H (non-condensing) H (non-condensing) H (non-condensing) H (non-condensing) yalvalen ges ² (30G) galvalen gable Li-Jon battery OHz	40Hz, Recorded with visible image +5 N/A N/A N/A N/A N/A D14), LED Light, Remot	Recorded with visible ima *5 r (with tilt adjustment)			
	Display Auxilian Rivession Sector Battern AC Po Dimens	Video Out; Alarm Out; External Tr Vibration & EMC Dust & spla y Operation wer aions	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input Femperature & Humidity Shock sh proof	Thermal image: Max: Hother, Recorded with visible image +5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Volta Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. class -15" C to 50" C. 90NR -40" C to 70" C. 90NR 29.4m/sec ² (3G), 294m/ 29.4m/sec ² (3G), 294m/ Protection class IP54 e 2.5hours (Typ). Recharg, 100V - 220V AC, 50/6 Approx. 1121 mm XWI00	[8Hz, Recorded with visible image +5 ction by external trigger inge bill and brightness adjustr s 2. IEC 60825-1 2007.20 H (non-condensing) H (non-condensing) H (non-condensing) H (non-condensing) yalvalen ges ² (30G) galvalen gable Li-Jon battery OHz	40Hz, Recorded with visible image +5 N/A N/A N/A N/A N/A N/A D14). LED Light, Remot	Recorded with visible images			
& Output Others	Display Auxilian Rivession Sector Battern AC Po Dimens	Video Outp Alarm Outp External Tr / Voperating Storage Te Vibration & EMC Dust & splay y Operation wer sions	Mass Storage Movie Data Transfer External Trigger Input ut ut gger Input Femperature & Humidity Shock sh proof	Thermal image: Max: OHtz, Record with visible image #5 Automatic recording fun input NTSC / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. class -15" C to 50" C, 90%R -40" C to 70" C, 90%R -40" C to 70" C, 90%R 29.4m/sec ² (30), 294m 29.4m/sec ² (30), 294m Protection class IP54 e 2.5hours (Typ). Recharg 100V - 220V AC, 50/6 Approx. 1.3kg (including Approx. 1.3kg (including)	BHZ, Recorded with visible image +5 ction by external trigger is is a 2. IEC 60825-1 2007/2 H (non-condensing) H (non-condensing) H (non-visited (non- visited (non-visited (non- visited (non-visited (no	40Hz, Recorded with visible image +5 N/A N/A N/A N/A N/A N/A N/A N/A N/A projection) able x1. Neck Strap x	Records with visible images +5 r (with tilt adjustment) a Controller			
Others	Display Auxilian Resistance Battern AC Po Dimens Weight Standa Standa	USB2.0 Video Outp Alarm Outp External Tr y Operating Storage Te Vibration & EMC Dust & spla y Operation wer sions ard Accesso ard Software	Mass Storage Movie Data Transfer External Trigger Input ut igger Input Femperature & Humidity mperature & Humidity Shock sh proof	Thermal image: Max: Hortz, Recorded with visible image +5 Automatic recording fun input NTSG / PAL Switchable Contact Signal. No Voltz Pulse Signal 3.5" LCD Monitor (with Laser Pointer (Red. class -15" C to 50" C, 90hR -40" C to 70" C, 90hR -40" C to 70" C, 90hR 29.4m/sec ² (3G), 294m/ 29.4m/sec ² (3G), 294m/ 29.4m/sec ² (3G), 294m/ Protection class IP54 e 2.5hours (Typ), Recharg 100V - 220V AC, 50/6 Approx. H121mm XWI00 Approx. H121mm XWI00 Approx. H121mm XWI00 Approx. H121mm XWI00 ImReC Analyzer NS9500	BHZ, Recorded with visible image 45 ction by external trigger i ge Lit and brightness adjustr z _ IEC 60825-1 2007/20 H (non-condensing) H (non-condensing) H (non-condensing) Lit for the sec ² (300) sec ² (300) sec ² (300) sec ² (300) pivalen asabe Li-Jon battery OHz Jimm X D195mm (excluding Battery Pack) x 1, SD Card x 1, USB C tery x 1, SO thar x 1, OUSB C	40Hz, Recorded with visible image +5 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	Recorded with visible images s r (with tilt adjustment) a Controller . Grip Belt x 1, d Carrying Case x 1			

*3 This increased resolution results from detecting characteristic within all frames acquired by the SR process and removing such effects as those cau hand vibration.

nam socialo. 44 For temperature accuracy : 30cm to infinity 45 Thermail image only when image transfer speed at 40Hz. 46 In order to transfer thermail 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		
	PKA-110VGM(US)	For 100 to 120V region (US)	AC adapter x 1,	
Power Kit	PKA-110VGM	For 100 to 120V region (Taiwan)	battery charger x 1	
	PKA-220VGM	For 220 to 240V region (Europe and Asia)	and AC cable x 2	

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.



Overseas Sales Department

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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.

INPRUIEG IR I

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