NEWS RELEASE

March, 06, 2014

Nippon Avionics Co., Ltd.
http://www.avio.co.jp/english/

*1.2 Megapixel Equivalent Resolution – Four (4) Times Standard Model!**

Infrared Thermography Camera InfReC Model R500 Series Debut

With Avio's Unrivaled Super Resolution Thermal Image Technology

* Comparison with Avio's On-Board, Multi-frame Super Resolution Processing Installed in Standard Avio IR Camera Models.

Nippon Avionics Co., Ltd. (Head office: Tokyo, Japan, President Katsuhiko Akitsu, and hereafter called Avio) introduced today the new Model InfReC R500 series High Resolution Infrared Thermography Camera that store 1.2M pixels resolution thermal images to join the highest class of thermography cameras.

These new R500 series Thermography cameras incorporate Avio's latest "Multi-Frame Super Resolution Image Processing" function which improves actual spatial resolution. This unique "on-board camera image processing" provides a four (4) times improvement of the native 0.3M detector pixels count to yield an effective resolution of 1.2M pixels and stores the image. The high resolution images obtained from using this technology have a wide range of application benefits including enhanced images of R&D electronic components, infrastructure maintenance such as the inspection of remote concrete bridge structures and delamination of building outer walls, and electric power facility inspections.

Avio is dedicated to providing solutions for customer's requesting "High Quality Thermography Cameras at Economical Prices" using state-of-the-art technology and developing attractive products, based upon the customer's point of view.

■ Model R500 Series External Appearance

■ Model R500 Series Lineup

Select a model to fit the application:
Note: See Specifications section for additional details

- R500Pro : Measuring range: -40 to +2000°C. Full featured model for R&D. Suitable for use in R&D, for making high temperature measurements, and for measuring sequential data.
- R500 : Measuring range: -40 to +500°C. Facility diagnosis model. Excellent choice for inspection of electrical facilities and remotely located pipes.

Model	Frame rate	Features
R500Pro	30Hz	Full featured for Research & Development
R500Pro-D	7.5Hz	
R500	30Hz	For Predictive Maintenance
R500-D	7.5Hz	

■ Outstanding Features of New Product

1) 1.2 Megapixels High Resolution Thermal Image

Realize the Highest Resolution in a class apart uncooled cameras by Multi-Frame Super Resolution Processing Technology.

- Super Resolution Recording Mode【SR Mode】
  1280 x 980 pixels Spatial Resolution: equivalent to 0.58mrad *1
- Normal Recording Mode
  640 x 480 pixels Spatial Resolution: 0.87mrad

2) High Sensitive, High Measurement Accuracy by Optical Technology and Unique Correction Technology

Appropriate to Evaluation with accuracy and Non-Destructive Inspection for catching slight difference of temperature.

- Sensitivity (NETD) :0.03°C at 30°C *2
- Temperature accuracy : ±1°C *3

3) Shoot Close-up 58um Images with Standard Lens

Very small objects can be measured and recorded with the combination of the R500's 10cm minimum focal distance standard lens and Avio's built-in "Multi-Frame Super Resolution Processing" function without the need of an optional lens.

- Minimum Spatial Resolution: equivalent to 58μm *1 【in SR Mode】

4) A Wide Viewing Angle Lens increases Working Efficiency

- The standard wide viewing angle lens captures large area images when working in limited space environments and improves overall shooting efficiency.

Field of view (F.O.V.): 32°(H)×24°(V)

5) Designed for Real World Field Operations

- Rotary LCD monitor is built in for multi-angle shooting.
- View finder is built in to maintain clear visibility when outdoor.
- FRZ/REC buttons placed in 2 positions make easy shooting from any angle.
- Full Auto Function is built in to adjust both temperature scale and focus simultaneously.
- 5 Megapixels visual camera adds clear visual images to thermal and visual "Split-screen Images" and "Fusion Images.
- Remote controller is provided as standard accessory for convenience when using a tripod installation.

6) Multiple Recording Modes

- Super Resolution (SR) Mode for high resolution recording
- Quick Panorama Mode to shoot continuous wide angle images up to a maximum of 100° horizontal.
- SD Movie Mode allows taking movies with the R500 camera at a maximum 3Hz frame rate. *4
- Interval recording of both thermal image and visual image simultaneously
- Trigger input and alarm output functions are provided for use with external instruments. *4

7) Simultaneously Record Real-Time Thermal and Visual Images to a PC via USB2.0

- Transfer analyzable thermal image movie data to PC at 15Hz
- Transfer visual image simultaneously with thermal image to PC
- NS9500Pro software for analyzing data in real time is provided as standard accessory with R500Pro. *4

8) Options Enhance Use in Various Measuring Environments

- 2 times wide angle lens and 2x times telephoto lens (available soon)
- Long operation battery case allows approx. 7.5 hours continuous measurement
- LCD hood to improve visibility

*1: This increased resolution results from detecting characteristic points within all frames acquired by the SR process and removing such effects as those caused by hand vibration.
*2: with S/N improvement
*3: at environmental temperature 20 to 30 ℃ in range 1
*4: R500Pro only

For Further Information, Please Contact ;
Nippon Avionics Co., Ltd.
Overseas Sales Team, Sales & Marketing Department,
Infrared & Measuring Equipment Division.
Phone: Tokyo, Japan +81-3-5436-1614
E-mail:product-irc-e@ml.avio.co.jp

＜Specifications＞

Features			R500P-NNU	R500P-DNU	R500-NNU	R500-DNU
Basic Performance	Infrared Detector		Uncooled Focal Plane Array (Microbolometer)			
	Spectral Range		8 to 14μm			
	Measuring Range		-40 to 2000°C		-40 to 500°C	
	Sensitivity (NETD)		0.03°C at 30°C （with S/N improvement）			
	Accuracy		±1°C *1			
	Frame Rate		30Hz	7.5Hz	30Hz	7.5Hz
	Detector Pixels		640（H）× 480（V）pixels			
	Recording Pixels		Standard : 640（H）× 480（V） Super Resolution (SR mode) : 1280（H）× 960（V） *2			
	Field of View		32°(H) × 24°(V) (with standard lens)			
	Spatial Resolution		Standard : 0.87mrad Super Resolution (SR mode) : 0.58mrad equivalent *3			
	Focal Distance		10cm to infinity (with standard lens) *4			
	Focus		Auto/Manual			
Image Display	Auto Function		Auto Scale, Auto Focus, Full Auto			
	Color Pallets		7 pallets (Rainbow, Brightness, Hot-white, Hot-black, etc.)			
	Gradation		256 / 32 / 16 / 8 grade			
	Visual Camera		CMOS camera 5M pixels			
	Visual/Thermal Fusion		Fusion, Picture-In-Picture, Split-Screen, Alpha Blending (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		Averaging (with ghost rejection), Filtering, Edge enhancement			
Measuring Functions	Point Temperature		10 Movable Points, Temperature search: MAX/MIN x 1 each, Delta T			
	Line Profile		Horizontal, Vertical, Horizontal & Vertical			
	Temperature Display in Assigned Region		MAX, MIN and AVG in Box (for up to 5 Boxes)		-	
	Alarm Function		Alarm Display, Alarm Sound, Color Alarm, Alarm Recording,			
			Alarm Signal Output			
	Temperature Correction		Emissivity, Environmental/Background, Distance, NUC			
		Emissivity	Multi-point Correction, Emissivity Table			
			Emissivity Reverse Calculation		-	
		Drift Stabilizer	Provided		-	
Storage & Output	Storage Device		SD card, Conforms to SDHC			
	Data Storage		Still Image：JPEG with Temperature Data (14 bit), Recorded, Movie：SVX file (exclusive), Visual Image Simultaneously			
		Super Resolution (SR)	Provided			
		Quick Panorama	Horizontal equivalent to 100°/ Vertical equivalent to 75°			
		SD Movie Recording	Max 3Hz		-	
		Interval Recording	3 sec to 60 min interval, Visual image Simultaneously Recorded			
		External Trigger Recording	Provided		-	

		Voice Annotation	30sec Recording/Replay per Image	
		Text Annotation	Annotate up to 256 Characters with each Thermal Image Import Characters from SD Card	
	Interface			
		USB2.0	Mass-Storage, movie transfer (Thermal Image Max 15Hz with Visual Image) *5	
		Video Output	NTSC / PAL Changeover	
		Alarm Output	Contact Closure. No Voltage	
		External Trigger Input	Pulse Signal	
Other	Display		3.5" LCD Monitor (with Tilt and Brightness Adjustment Available),Color View Finder (with Tilt Mechanism)	
	Auxiliary		Laser Pointer (red, class 2, PSC compliant), 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/sec² (3G), 294m/sec² (30G)	
		EMC	Conforms to CE regulations (Class A)	
		Dust & splash proof	Protection class IP54 equivalent	
	Battery Operation		2.5h (Typ), Rechargeable Li-Ion battery, (7.5 hours with optional long time battery) *6	
	AC Power		100V - 220V AC, 50/60Hz	
	Dimensions		Approx. H121mm×W105mm×D195mm (excluding projection)	
	Weight		Approx. 1.3kg (including Battery Pack)	
	Standard Software		InfReC Analyzer NS9500Pro	InfReC Analyzer NS9500Std *5

∗1 Only the Range 1 at the environmental temperature of 20 to 30°C.
In other range, it is ±2°C or±2%.

∗2 Still Image Only

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

∗4 For defined Temperature Accuracy supported: 30 to cm to infinity

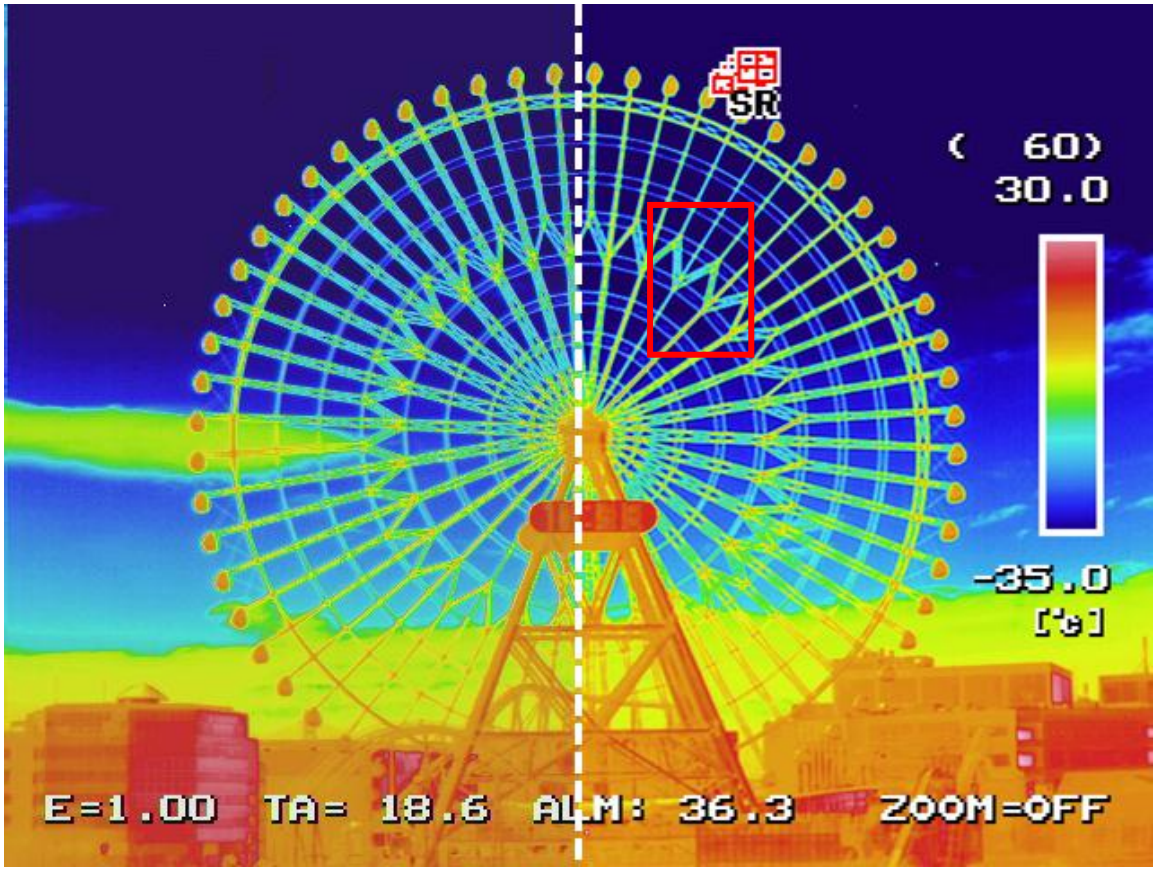
∗5 To Transfer thermal image movie data by R500 is required to version up to “InfReC Analyzer NS9500 Professional” (optional software)

∗6 2 extra batteries (optional parts) are required

Reference: Comparison of effectiveness by Super Resolution Processing

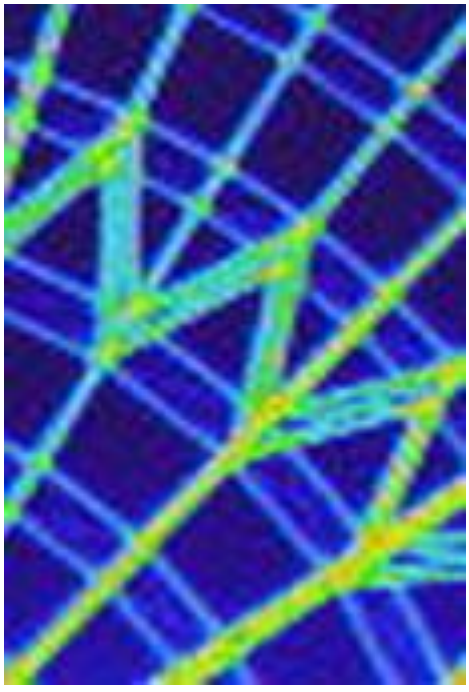
640×480 pixels
(Sensor Format Image)

1024×960 pixels
(Super Resolution Mode Image)



Expansion & Comparison

640×480 pixels (Sensor Format Image)



1024×960 pixels (Super Resolution Mode Image)