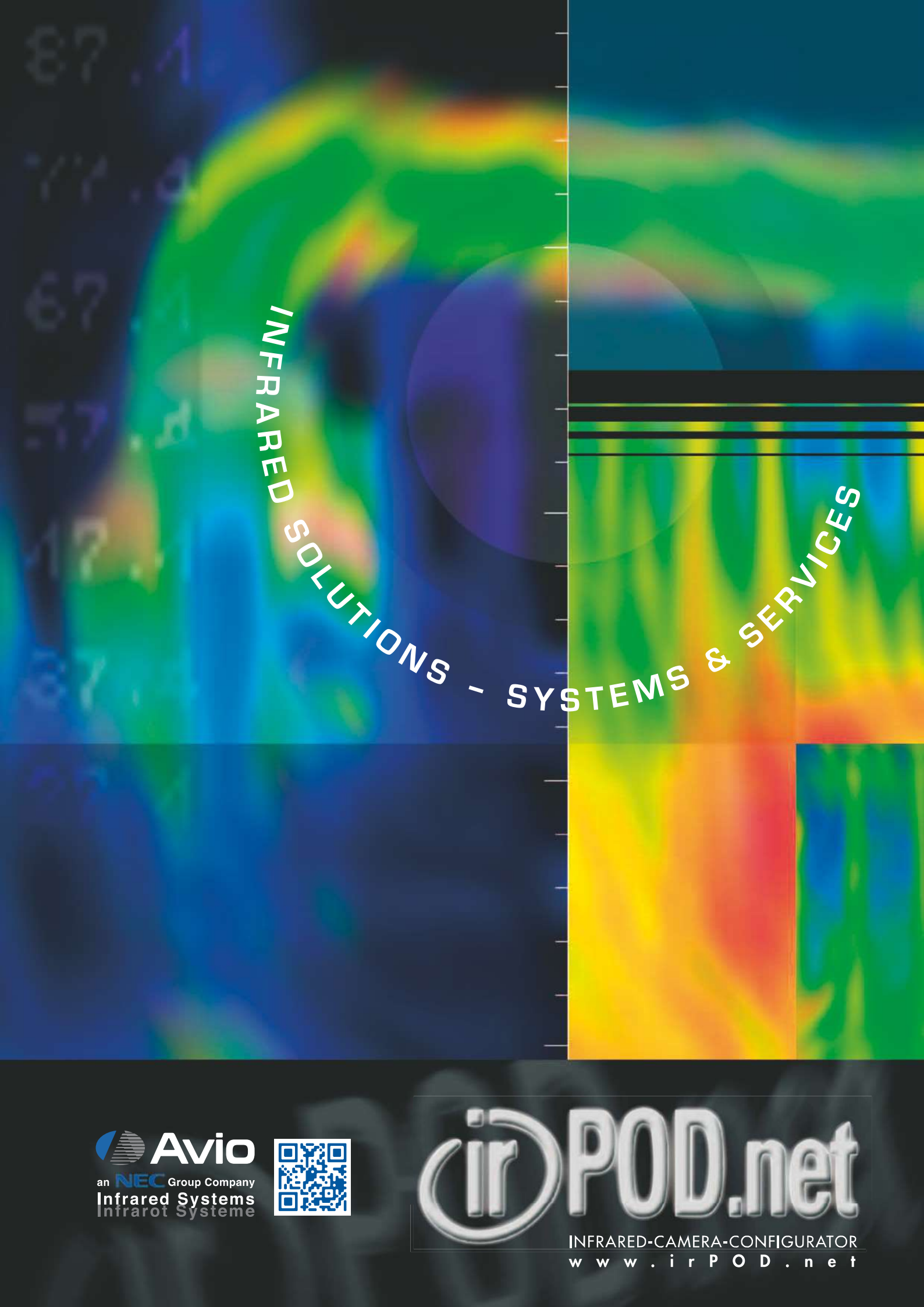

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New-Style Thermal Imaging Camera With Removable Unit

FREE STYLE

THERMAL IMAGING CAMERA "Thermo FLEX F50"

InfReC InfraRed Camera

TOUCHSCREEN

Intuitive & Easy Operation
for beginners

REMOVABLE

Removable camera head
for various styles & scenes

NIPPON AVIONICS CO.,LTD.

"Angle-Free" Camera-Head to Visualize the Invisible Risks

- Tilt the camera head to measure high angle position...
- Remove the camera head to turning around the backside of the equipment...

We realized "Angle-Free" thermal imaging camera can be freely used "Rotation Style" and "Separation Style", which innovates the measurement operation. "Thermo FLEX F50" contributes to the visualization of invisible risks and the efficiency of measurement work.

"Free Style" thermal imaging camera offers various camera styles

A new style of thermal imaging camera "Thermo FLEX F50" has a removable camera-head and controller. You can take various measurement styles in a wide variety of measurement scenes!

Rotation Style: Camera-head can be tilted and can be mounted on the both joint of controller.

Separation Style: Removed camera-head from controller. Camera-head can be freely operated.

The camera-head and controller can be mounted on tripod by screw.

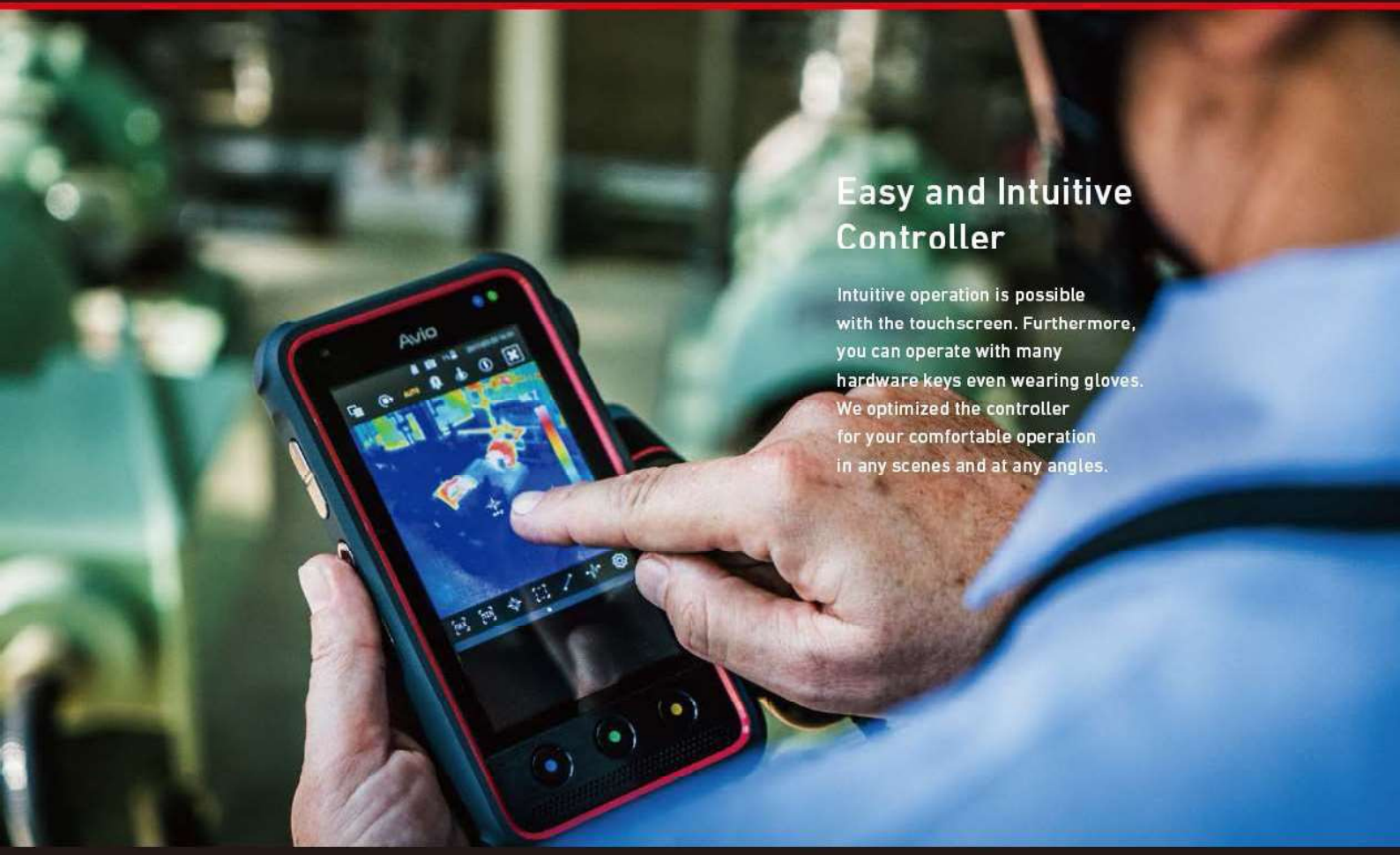
"Look Up", "Look Down", "Turn Around", "Attach On", "Put In" — Shoot Freely in Any Styles!

Efficient measurement is possible even in the place such as narrow space and inside a device, etc.

Rotating camera-head by tilting sense provides you comfortable shooting without facing upward to the high angle.

You can shoot from any angle comfortably by the removable camera-head while watching the controller.

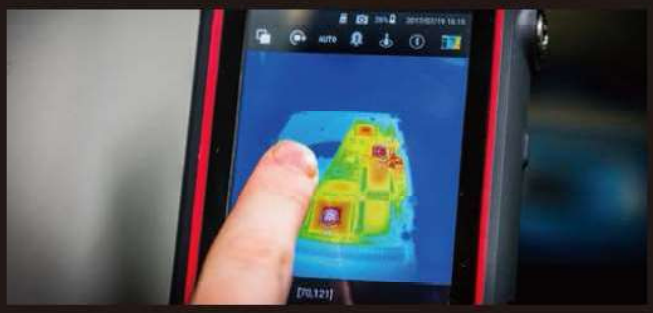
The camera-head can be attached to a helmet with a sense of wearable or the controller, and can be attached to a pole as camera stick.



Easy and Intuitive Controller

Intuitive operation is possible with the touchscreen. Furthermore, you can operate with many hardware keys even wearing gloves. We optimized the controller for your comfortable operation in any scenes and at any angles.

Easy Touch Operation even Beginners



The function such as "Temperature Scale Setting" and "Point Measurement" by touch operation are equipped. Intuitive operation makes the thermal measurement easy and efficient.

Easy Hardware Key Operation even wearing gloves

Frequent operation such as "Temperature Scale Setting" and "Recording" can be performed by hardware key. Comfortable one-hand measurement is possible even wearing gloves.

Up to 70°C heat-resistant camera-head

The small camera-head can be put into a device such as thermostatic chambers. You can operate remotely by touchscreen of the external controller while checking the measurement status.

Attachable camera to tripod and wall

The camera-head and controller can be mounted on a tripod or fixed on a wall for stable and easy measurement. The camera can be supported various usages with many combinations of commercial accessories freely.

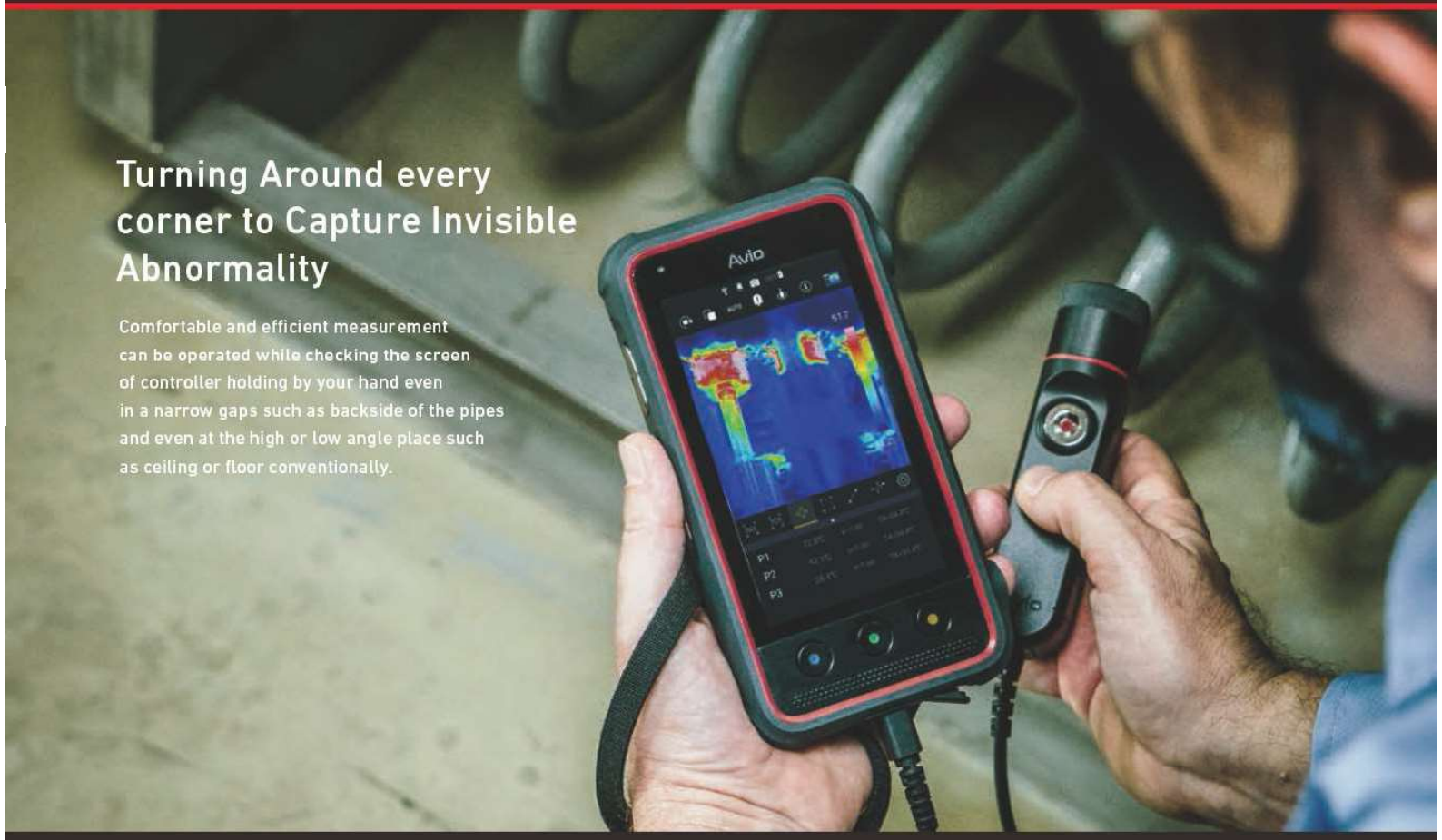
New-Style Thermal Imaging Camera With Removable Unit

FREE STYLE

THERMAL IMAGING CAMERA "Thermo FLEX F50"

Factory / plant solutions

InfraRed Camera



Turning Around every corner to Capture Invisible Abnormality

Comfortable and efficient measurement can be operated while checking the screen of controller holding by your hand even in a narrow gaps such as backside of the pipes and even at the high or low angle place such as ceiling or floor conventionally.

Thermo FLEX F50 FREE STYLE

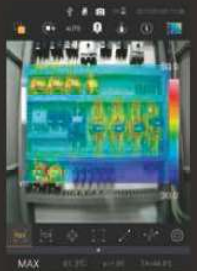
Rotation Style

Camera-head can be rotated with mounted on the controller. Stable measurement can be available by a hand.

Separation Style

Camera-head can be removed from the controller. Freely measurement can be done in any place.

Wide-angle 70° lens makes work more efficient



The 2 types of the camera-head with 70° or 35° wide angle lens can be covered with wide area. Measuring time will be drastically reduced. Unnecessary to adjust the focus owing to the wide angle lens, even inexperienced operators can shoot efficiently.

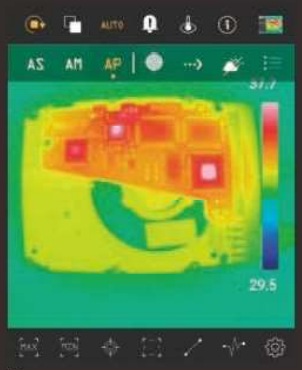
Easy-to-handle portability on site

The camera-head can be attached to a helmet with a sense of wearable. The attached camera-head which can be performed in conjunction with your line-of-sight increases the efficiency of measurement.

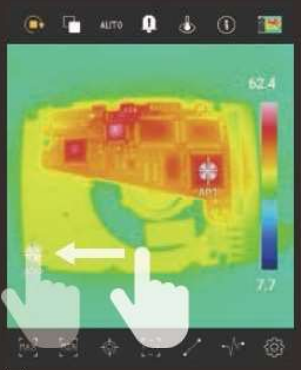
You can wear the camera around your neck with a strap to prevent from falling of the camera, and to have your hands free.

NIPPON AVIONICS CO.,LTD.

"Auto Point" function makes temperature scale's setting more efficient



1



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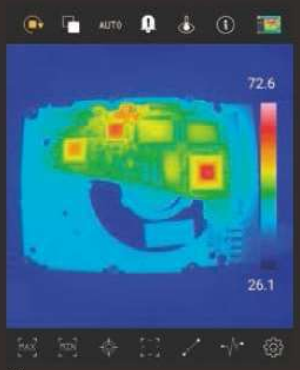


3

The setting and adjustment of temperature scale was the most difficult operation for beginners. With the new "Auto Point" function, even beginners can easily set the optimal temperature scale by touching the upper and lower limit temperature values intuitively. Moreover, you can automatically adjust the upper limit temperature values which depends on the temperature change by "Auto-Maximum" function.

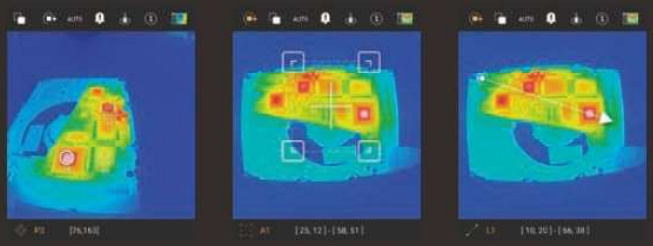
1 Conventional "Auto-Scale" function could not be adjusted the temperature scale as you expected.

2 With the new "Auto Point" function, you can adjust the temperature scale just by touching the point which you want to set as the upper and lower limit temperature values.

3 With above intuitive operation, you can complete the temperature scale setting quickly.

Intuitive Measurement Object by touch

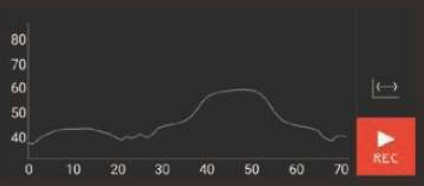
Setting "Point", "Area" and "Line" are possible for measuring by touch operation.



Point Area Line

Create graph of temperature gradient on the spot

"Line Profile" function can be visualized the slight temperature differences which cannot be recognized by temperature value data only. The measured data can be saved as a CSV format.

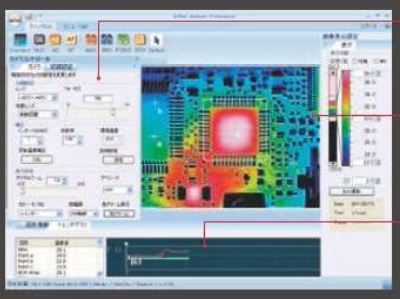


Option PC Software High-Performance On-line Analysis Software

InfReC Analyzer NS9500 Professional

Online operation from "camera control" to "real- time measurement and analysis"

Camera control, real- time measurement and analysis can be performed by connecting with the PC. The recorded data can be analyzed in detail with the NS9500 Std.



Camera control

Remote control such as temperature scale setting and calibration (NUC) by PC is possible

Real-time Image Display & Recording

Display thermal image, visible image and fusion image in real-time and record to PC (HDD) simultaneously.

Real time measurement

Display temperature of measuring points and max/min/average in specified boxes.

Main functions: Camera control / Real time image display / Image recording (Dynamic / Static) / Thermal image, Visible image, Composite display / Graphic setting / Trend graph display

New-Style Thermal Imaging Camera With Removable Unit

FREE STYLE

THERMAL IMAGING CAMERA "Thermo FLEX F50"

Research and development solutions

InfRec
InfraRed Camera

Heat-Resistant and Small Camera-Head Increase the Efficiency of Thermal Testing Overwhelmingly.

It is unnecessary for you to do troublesome work taken much time such as attaching thermocouple and writing work to the thermostatic chambers any more. You can capture the changes of temperature more efficiently putting the small camera-head into a device and a testing machine.

Thermo FLEX F50 FREE STYLE

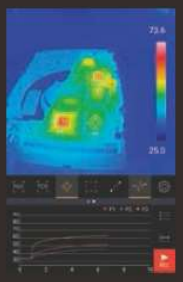
"Separation Style" can be mounted on a tripod and fixed on a wall

Remote operation with controller can be performed without touching the camera-head.

Small Camera-Head resists up to 70°C

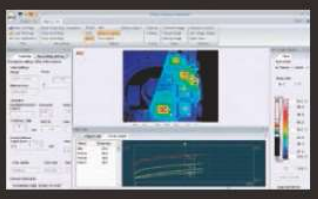
We realized small size and high heat-resistant temperature performance camera can be put into a device such as thermostatic chambers.

Automatically Create "Trend Graph" without a PC



It is possible to create a trend graph with controller automatically. Analysis by software is unnecessary.The created graph can be transferred to a PC as a CSV file.

Real-Time Analysis is possible by connecting to a PC

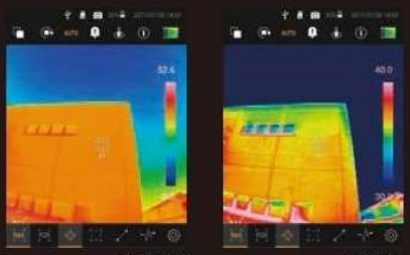


Recording thermal movie data is possible by connecting the camera to a PC. You can analyze the temperature of point in details capturing the changes of temperature as movie data. (by using optional software "NS9500 Pro")

NIPPON AVIONICS CO.,LTD.

"Sky Off" Function – "Auto-Scale" works by optimally at outdoor

You can set the auto-scale's upper/lower values by ignoring the temperature of the above/below threshold values. The accuracy of "Auto-scale" will be increased with masking the temperature of cloud and sun.



Skyoff OFF　　Skyoff ON

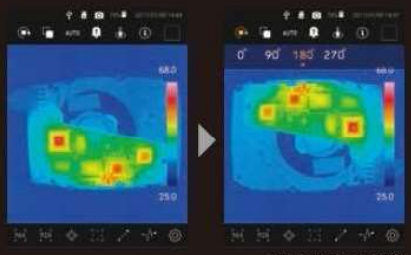
"Burst Shooting" Function – Quick shooting for even at unstable place

"Burst shooting" function can be used for quick shooting at the unstable place where you cannot keep shooting angle or keep your posture. You can choose the best shot taking your time after quick burst shooting.

Press and hold Shutter button for continuous shooting

"Image Rotation" Function

"Image Rotation" function can be rotated the image of screen at every 90° to correct the orientation of image.



Rotate the image 180°

"Composite Visible Image" Function – thermal image and visible image

The controller can be adjusted the transmission of thermal image and visible image on the screen with slide gauge and can be trimmed the thermal image of Picture-in-Picture by freely.

Adjust the transmission with the slide gauge　　Trim the thermal image on the visible image

"LED Light" Function – Measuring in a dark place

The camera-head is equipped with "LED Light" can be turned on it by button of the controller. It is very useful when measuring by visible light in a dark place.

Various "Alarm" Function

An alarm will go off when the camera detects the temperature abnormality. Moreover, "Color Alarm Function" is also equipped for highlighting the specific temperature area.

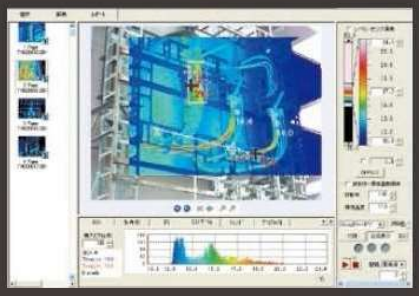
Alarm　　Color alarm

Option PC Software Multi-Function Report Generator Program

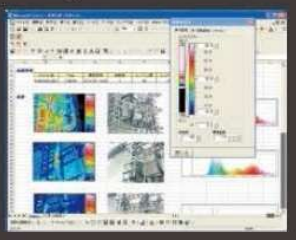
InfReC Analyzer NS9500 Standard

"Select" → "Analyze" → "Report" 3 Simple Steps Operation

"NS9500 Standard" can be analyzed such as MAX/MIN temperature of designated point, average temperature and Histograms. This software can be inserted thermal image, visible image and graph to the template, such as Excel or Word.



Temperature range can be changed in Word and Excel



Main functions: Search by such as File Name, Measurement Day, Comment / Temperature Display, Emissivity Setting / Display Line Profile, Histograms and Trend Graph / Length/Square Measure Calculation / Radiated Heat Capacity Calculation / Report Generation (Excel, Word)

Thermo FLEX F50

Customize button

Customized buttons for more efficient measurements

You can set frequently used functions to three buttons.

Assignable functions

- Light ON / OFF • Image rotation • Composite display switching
- Auto scale ON / OFF • Temperature alarm ON / OFF
- Color alarm ON / OFF • Information ON / OFF
- Menu display ON / OFF • Switch to preview
- Thumbnail switching • Live mode switching

Default

- Blue: LED light ON / OFF • Green: Auto scale • Yellow: image rotation

Infrared Thermal Imaging Camera InfReC F50 series: Specification BAS: Basic, STD: Standard, ONL: Online

			Basic model (with main basic functions)		Standard model		Online model	
			F50A-BAS	F50B-BAS	F50A-STD	F50B-STD	F50A-ONL	F50B-ONL
Basic Performance	Field of View*1		35°×35°	70°×70°	35°×35°	70°×70°	35°×35°	70°×70°
	Spatial Resolution		2.8mrad	5.3mrad	2.8mrad	5.3mrad	2.8mrad	5.3mrad
	Focal Distance		30cm to infinity*2	10cm to infinity*3	30cm to infinity*2	10cm to infinity*3	30cm to infinity*2	10cm to infinity*3
	Focus		Focus Free					
	Infrared Detector		Uncooled Focal Plane Array (Microbolometer)					
	Spectral Range		8 to 14μm					
	Recording Pixels		240×240 pixels					
	Frame Rate		7.5Hz					
	Measuring Range		-20°C to 350°C*4					
	Sensitivity (NETD)		0.05°C at 30°C					
	Accuracy		±2°C or ±2% (Indicated Value)*5					
Image Display	Auto Function		Auto Scale / Auto MAX / Auto point					
	Color Pallets		7 pallets (Olive, Rainbow, Brightness, Hot-white, Hot-black, etc.)					
	Gradation		256 / 128 / 64 / 16 grade					
	Visible Camera		CMOS camera 5M pixels					
	Visible/Thermal Fusion		Picture-In-Picture (with trimming function), Blending (transparency changeable, size & position adjustable)					
	Display Functions		1 to 4 times continuous digital zoom (Thermal, Visible, Fusion)					
Measuring Functions	Alarm Function		Alarm Display, Alarm Sound, Color Alarm, Alarm Recording					
	Temperature Correction		Emissivity (Full image, Multi-point), Environmental/Background, Emissivity Table					
	Point Temperature		5 Movable Points, Temperature Search:MAX/MIN x1 each					
	Temperature Display in Assigned Region		—		BOX × 1 (MAX, MIN and AVG in Box)			
	Line Profile		—		Line × 1			
	Delta Temp		—		Delta T × 1			
Storage & Output	Storage Device		micro-SD Card, Conforms to SDHC					
	Data Storage	Data Form	Still Image : JPEG with temperature data (14 bit) Recorded with, Visible Image					
		Continuous Recording	—		Max 7.5Hz (Up to 10 sec.)			
		Interval Recording	—		3 sec to 60 min interval, with Visible Image recorded			
		Trend Graph	—		csv format			
		Line Profile	—		csv format			
		Voice Recording	30 sec Recording, replay per a Thermal image					
		Text Annotation	Annotate up to 128 Characters per a Thermal Image. Characters imported from SD Card					
	Interface	File Transfer	USB2.0 (MTP)					
		Real Time Transfer	—		—		USB2.0 Image transfer (Thermal Image with visible image, Maximum transfer speed 7.5 Hz)*6	
Others	Display		4.8 inch HD (720 × 1280 pixels), Touch Panel					
	Auxiliary		LED Light (equipped Camera Unit)					
	Environment Resistance	Operating Temperature & Humidity	Camera Unit : -20°C to 70°C, 90%RH (non-condensing) / Controller Unit : -20°C to 50°C, 90%RH (non-condensing)					
		Storage Temperature & Humidity	Camera Unit : -40°C to 60°C, 90%RH (non-condensing) / Controller: Unit : -40°C to 60°C, 90%RH (non-condensing)					
		Drop, Vibration & Shock	Engineered to withstand 1m drop, 29.4m/s² (3G), 294m/s² (30G)					
		Dust & splash proof	Protection class IP64 equivalent					
		EMC	Conforms to CE regulations (Class A)					
	Power Supply	Battery	Lithium-ion (built-in) ,Battery Operation: 4 hours (Typ.) (with power saving mode)					
		AC Adapter	100V - 240V AC,50/60Hz (AC Adapter by USB cable, micro B connector)					
	Dimensions		Camera Unit : Approx. 30mm×40mm×130mm (excluding projection and cable) / Controller Unit : Approx. 169mm(H)×92mm(W)×24.5mm(D)(excluding projection and cable)					
	Weight		Camera unit : Approx. 100g / Controller unit : Approx. 400g (excluding cable)					
	Accessory		Carrying case, micro SD Card, micro SD Card Adapter, USB AC Adapter, micro USB cable (for power feeding and connection), Neck Strap, Operation Manual, Software(NS9500LT)					

*1 Tolerance : ±5% *2 For temperature accuracy : 100cm to infinity *3 For temperature accuracy : 30cm to infinity *4 Only camera Unit at the environmental temperature from 0 to 70°C. Condition at the environmental temperature from -40 to less than 0°C, measuring range is -20 to 300°C. *5 Environmental temperature : 0 to 40°C (other conditions : ±4°C or ±4%) *6 In order to transfer Thermal motion image by F50A-ONL/F50B-ONL, it is required to upgrade to "InfReC Analyzer NS9500 Professional" (optional software) ★This product is subject to the United States' Export Administration Regulations (EAR) for the reason that it incorporates U.S.-made components and parts. Depending on its destination or subsequent user's purpose or business, U.S. Government assessment and authorization prior to re-exporting, reselling or retransferring might be required. For details please consult our sales staff. • Company names and product names used are trademarks or registered trademarks of each company. The screen in the catalog is a fitting synthesis. • Description of specifications, designs, prices, etc. may be changed without notice for improvement. The color of the photograph may differ slightly from the actual product color because of printing.

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INFRARED SOLUTIONS

Application Anwendungsbereich	Model Modell						
Building Investigation Gebäudethermografie	◑	◑	●	●			
Electrical Thermography Elektrothermografie	◑	◑	●	●			
Medical/Human Body Investigation Medizintechnische Anwendungen	◑	◑	●	●	○		
Predictive Maintenance Vorbeugende Instandhaltung	●	●	◑	◑		○	
Research & Development Forschung & Entwicklung	○	○	●	●	◑	○	
Automation/Conditional Monitoring Automation/Qualitätssicherung			◑	◑	●	○	
Industrial Process Control Industrielle Prozesskontrolle			◑	◑	●	○	
Surveillance/Rescue Management Fernbeobachtung/Sicherheitstechnik					●		
Traffic Control Verkehrsüberwachung					●		
Furnace/Glass melting industry Brennraum/Glasschmelze						●	
Flame- and plastic measurement Flamm- und Folienmessung						●	

○ capable geeignet ◑ well suitable gut geeignet ● particularly suitable sehr gut geeignet

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Infrared Systems
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