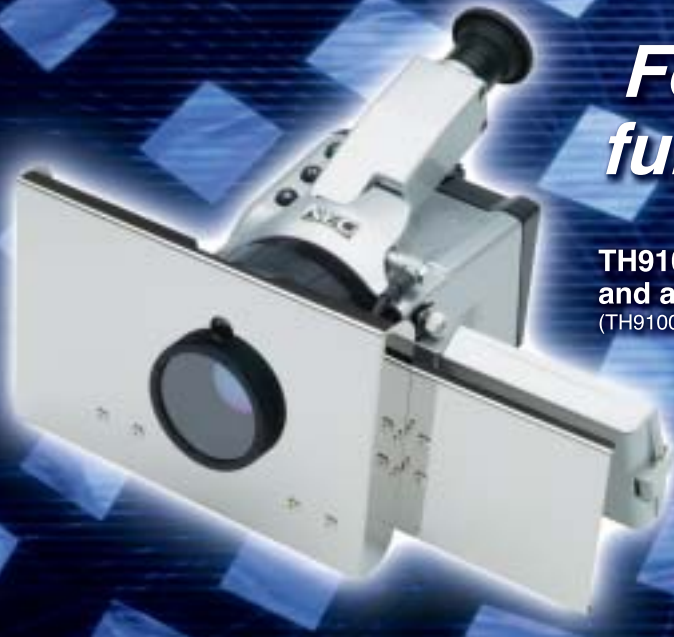# NEC

Infrared Thermal Imager
Thermo Tracer
TH9100 WB/WBG

Extended Measuring Range for Special Purposes!!

For inspection of inside furnace or glass surface

TH9100WB with a protective shield and a protective window.
(TH9100WBG does not include a protective window.)

TH9100 mainframe

Built-in Special Purpose Filter
TH9100WB: For measuring temperature of an object with flames by reducing influence from them.
TH9100WBG: For measuring temperature of glass surface.

Same Functions & Operability of TH9100PWV
Infrared/visual image fusion
LCD/viewfinder automatically switches when opened
Easy-to-find shaded point cursor
Thumbnail display for simple management of thermal images
File operation available during RUN mode
Easy-to-use Joystick control
Multilingual menu (English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish, Simplified Chinese, Traditional Chinese)
Full-auto function

Built-in Motor Drive Lens with Visual Camera
Records thermal & visual images simultaneously and displays their fusion images for easy identification of hotspots.
**Optional lenses of TH9100 series are not available.

New Functions for Improved Image
Multi-focus: For getting a focused image of multiple areas at different distance.
Sharpness Filter: For reinforced edges to get better resolution
Median Filter: For noise reduction to get better NETD (S/N ratio)
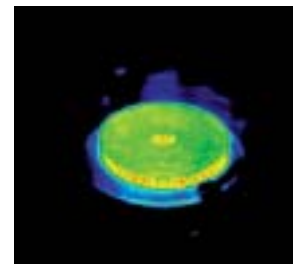
Clear Image
New reflective/transmissive LCD for use in both bright and low light situations.

Comparison:Gas Burner
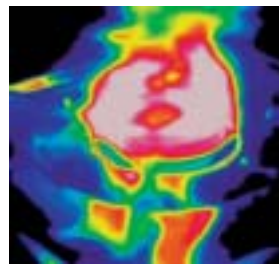
No Flame Filter: 3 to 5.3μm

Temperature of the burner cannot be identified because of influence from flame.

With TH9100WB Flame Filter 3.8μm

Temperature of the burner surface can be measured by reducing influence from flame.

Robust Body
Dust/splash-proof IP54
Shock-proof 294m/sec^2 (30G)
Vibration-proof 29.4m/sec^2 (3G)
Protective shield

Moving Image Recordable
Recording Time:
Approx. 27 sec (at 60Hz/sec)
Approx. 55 sec (at 30Hz/sec)
Approx. 166 sec (at 10Hz/sec)

NEC Avio Infrared Technologies Co., Ltd.

Specifications

| Measuring range			TH9100WB	TH9100WBG
	Range 1		\-40 to 120°C	
	Range 2		0 to 500°C	
	Range 3		200 to 2000°C (Off-spec at 200 to 400°C) (Temp uniformity not specified at 1500 to 2000°C)	200 to 2000°C (Off-spec at 200 to 400°C but can be displayed) (Temp uniformity not specified at 1500 to 2000°C)
Resolution	Range 1		0.1°C(at30°C 60Hz)	0.08°C(at30°C 60Hz)
Accuracy	Range 1&2		±2°C or ±2% or reading whichever is greater	
	Range 3		Within ±32°C (Average of 10x10 pixels at center)	Within ±36°C (Average of 10x10 pixels at center)
Detector	Uncooled focal plane array (microbolometer)			
Spectral range	Range 1&2		8 to 14μm	
	Range 3		3.8μ	7.7μ
I.F.O.V.	1.2mrad			
Focusing range	30cm to infinity			
Field of view	21.7°(H) x 16.4°(V)			
Frame time	60 frames/sec			
Display	View finder and 3.5-inch LCD monitor with auto switch			
Thermal image pixels	320 (H) x 240 (V) pixels			
A/D resolution	14 bits			
Measuring functions	Run/Freeze			
S/N improvement	$\Sigma2, \Sigma8, \Sigma16, \Sigma32, \Sigma64$ and spatial filter ON/OFF			
Alarm	Screen display and alarm sound (ON/OFF)			
Interval measurement	Recording on built-in real-time memory : 1/60 to 3600 sec interval Recording on memory card : 5 to 3600 sec interval (thermal image) 30 to 3600 sec. (thermal & visual images) Trigger function provided			
Emissivity correction	0.10 to 1.00 (at 0.01 step), Emissivity table provided			
Env. temp. correction	Provided (including interval NUC)			
User setup	Pre-registration of environmental setup (max. 10 setups)			
Background comp.	Provided			
Auto functions	Full automatic (level, sense, focus) Level trace, auto-gain control			
Display functions	Thermal/visual fusion image display Display color : color/monochrome, positive/negative Gradation : 16, 32, 64, 128, 256 Color pallette : rainbow, brightness, shine, hot-iron, medical, fine Isothermal band display : max. 4 bands Thumbnail display : 12 thermal images replay Multi-sense display, Battery life indicator Line-profile : X, Y line profile (waveform display) Multilingual menu			
Image processing functions	Variable level/sense Multi-point temperature display (10pts) Multi-point emissivity display (10pts) Δt display Max/Min (peak hold) temperature display Alarm (full screen or specified box) Digital zoom : 2, 4 times (Run/Freeze) Box setting (max. 5 boxes)			
Annotation	Text and voice annotation (30 sec per image)			
Storage device	Compact flash memory card for; Thermal image in SIT or BMP file format Visual image in SIT or JPEG file format Thermal/visual fusion image in BMP file format			
Movie recording	Real-time memory : 1664 images (max. 60Hz)			
Video signal output	NTSC/PAL composite video signal, S-video			
Interface	IEEE1394, RS-232C			
Operating temp/humidity	\-15 to 50°C, 90% RH or less (not condensed)			
Storage temp/humidity	\-40 to 70°C, 90% RH or less (not condensed)			
Power supply	AC adaptor : 100V to 240V, DC 7.2V (nominal)			
Power consumption	Approx. 6W (typical)			
Shock and vibration	294m/sec^2 (IEC60068-2-27), 29.4m/sec^2 (IEC60068-2-6)			
Environmental protection	IP54 (IEC60529)			
Dimensions	Approx.108 (W) x 113 (H) x 189 (D) mm (excluding projection and protective shield)			
Weight	Approx. 1.7kg (excluding protective shield and protective window)			
Standard accessories	AC adaptor, battery pack (2pcs), battery charger, compact flash memory card, grip belt, neck strap, lens cap,carrying case, viewer software, operation manual			

Specifications are subject to change without prior notice.

Visual Camera

Pixels	0.41Mega pixels
Effective image pixels	752 (H) x 480 (V) pixels
Field of view	30.1° (H) x 22.7° (V)
Sensitivity	1 lux
Focusing distance	30cm to infinity
Auto exposure	Provided
Video signal	NTSC/PAL

Applicable Software

Viewer Software

· Thermal image display :
· Thermal image thumbnail(Windows Explorer)
· Thermal image replay
· Image preview
· Setup & Functions :
Level, Sense, Span, Voice replay,
Selection of thermal or visual image,
Color bars, Gradation, Page
· Edit :
Image save (BMP or JPEG)
Select folder
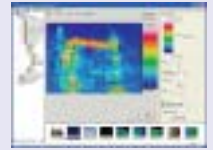
Report Generator NS9200 (optional)

· Helps to make reports easily with thermal images and temperature data on MS Word and Excel.
· Fusion of thermal and visual images.
· Subtraction (Entire image, specified area, like-figures)
· File management with database.
· Detects abnormal temperature by max/min temperature display.
· Data capture on Excel. (Allows to acquire and display real-time thermal image on Excel. Also enables to create graphs and display in moving mode.)

Data Capture Program with Trigger Function irMOTION NS9100 (optional)

· Helps to acquire real-time images via IEEE1394 or Ethernet.
· Easy programming of measurement condition and procedures. (Trigger Sequence function)
· Temperature display within specified area. (up to 16 points)
· Real-time trend display. (up to 8 waveforms)
· Real-time subtraction from selected thermal image.
· Real-time display of thermal/visual fusion image on selected visual image.

Image Processor Pro II NS9300 (optional)

· Real-time data processing (Diagram setting, Δt display of multiple diagrams, graph display including 3-D graph)
· Thermal/visual image fusion.
· Patchwork (Integrates multiple thermal images into one and enables data analysis)
· Sequence editor (Converts multiple thermal image files into thermal movie files)
· Report generation (MS Word, MS Excel, HTML and MRT)
· Data output (Excel, BMP, JPEG and AVI)
· IEEE1394 data capture with simple tigger fumction.
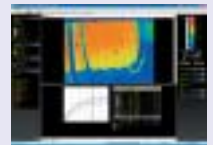
Field of View Diagram (Thermal image)
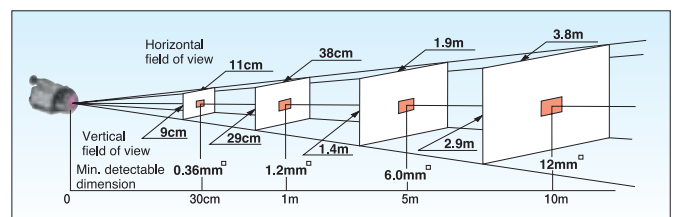
⚠ **CAUTION FOR SAFETY** Please read "WARNING" & "CAUTION " in the operation manual attached to the product carefully for proper operation before using the product.

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