FOTRIC

CONNECTING THE DIGITAL FUTURE

A Symphony of Sight and Sound

Where Professional Thermal Imaging Meets Professional Acoustic Technology

FOTRIC *P*MiX

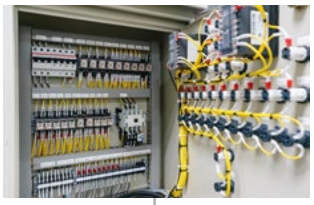
Acoutherm Camera

To ensure the peak performance and utmost quality at your facility, every piece of power equipment, production machinery and transmission devices must be inspected with cutting-edge technology.

Identifying potential issues and enabling predictive maintenance requires **professional thermal imaging cameras** and **professional acoustic imaging cameras.**

How do you keep track of all the potential hazards?

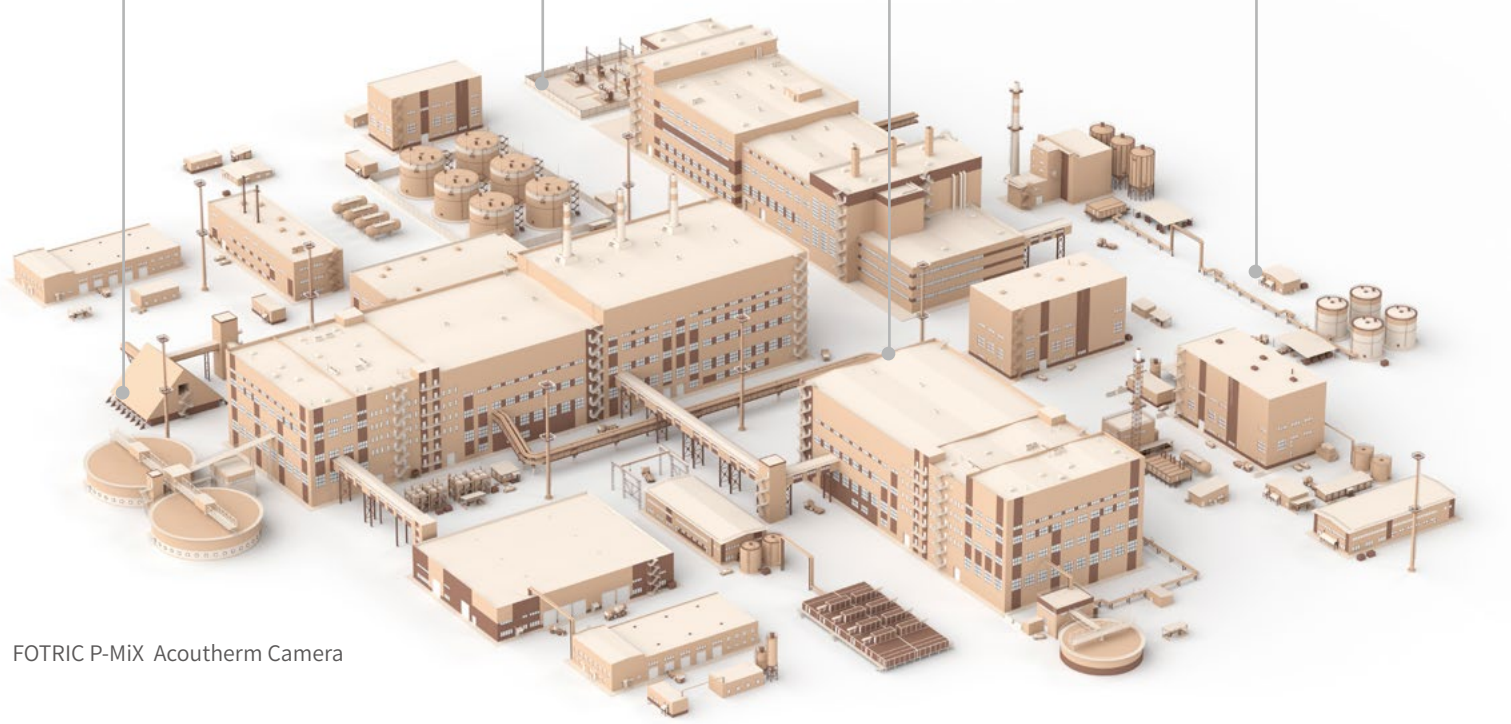
Electrical equipment overheating



Substation partial discharge

Pipeline leakage

Noise and vibration



FOTRIC P-MiX Acoutherm Camera

During routine facility inspections,

SEVERAL pieces of equipment

are required.

This includes thermal camera, PD detector, leakage detector, among others.

However,

these tools separately are often cost-intensive and inconvenient when every moment counts

Cost-intensive

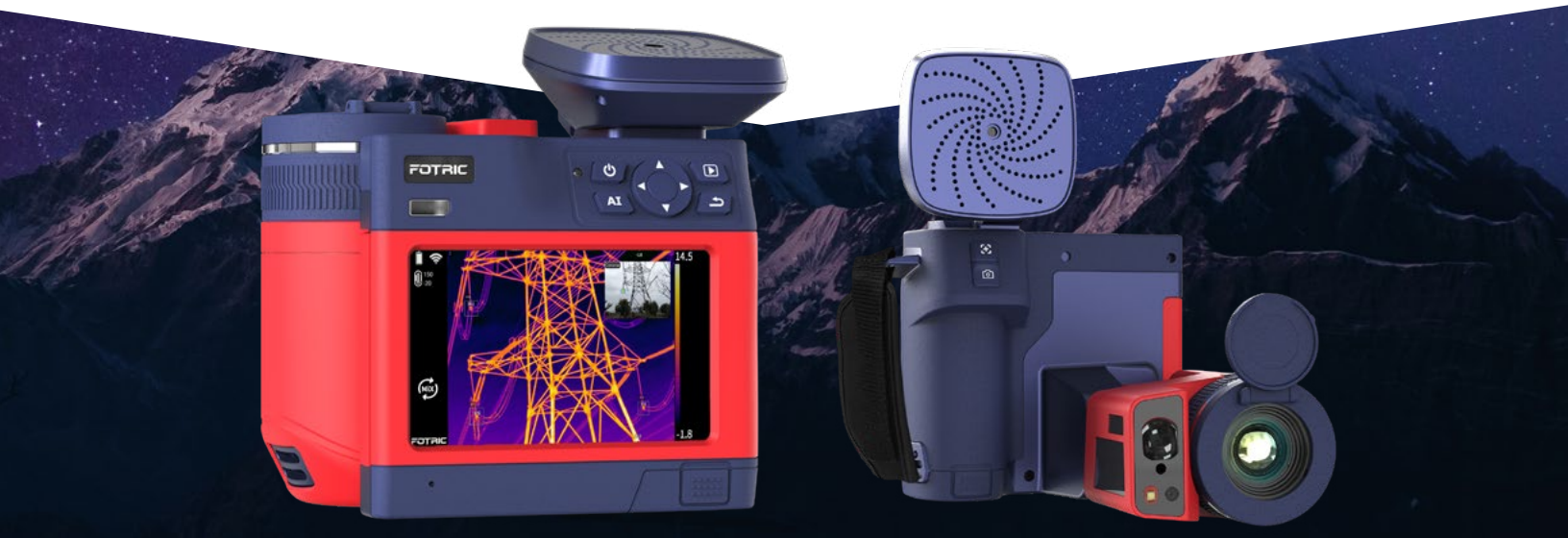
Excessive strain

What if ONE device took care of it all for you?

FOTRIC's leading INNOVATION:

Acoutherm Camera

A fusion of a professional thermal camera and an advanced acoustic camera, harnessing their combined strength provides you with:
precise measurement, high-definition imaging,
and evaluation of leaks and partial discharges.

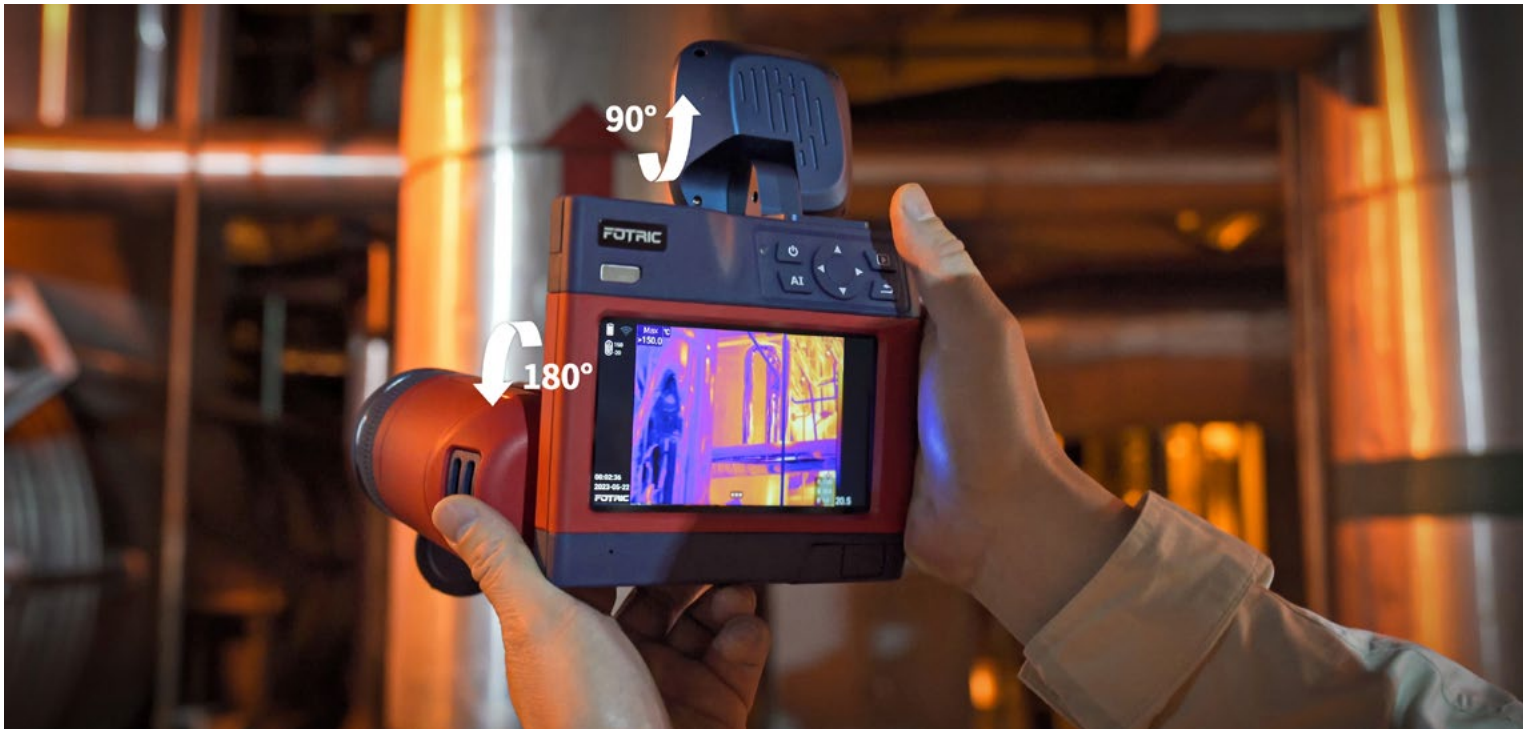


FOTRIC P-MiX Acoutherm Camera

Versatile Design

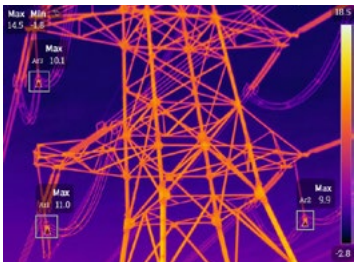
During an inspection, certain areas of the facility may be difficult to access, and the placement of equipment may make it challenging to capture the necessary images.

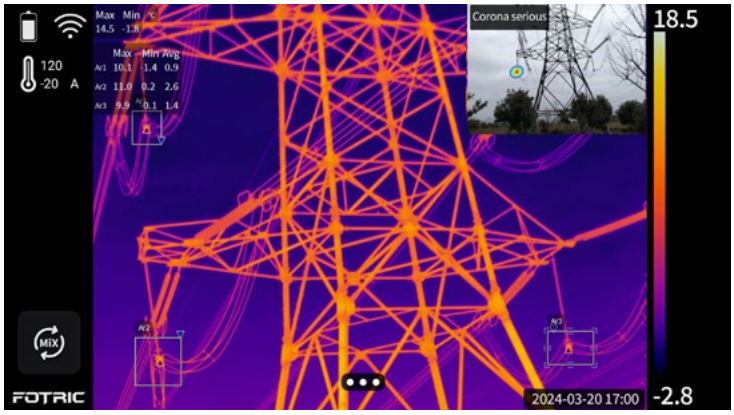
The FOTRIC P-MiX Camera allows you to get into tight corners and get a greater view of areas out of reach with its rotatable infrared lens barrel and acoustic microphone array. Overhead glares are eliminated, inspectors are kept safer, and your photo quality is no longer compromised by difficult angles.



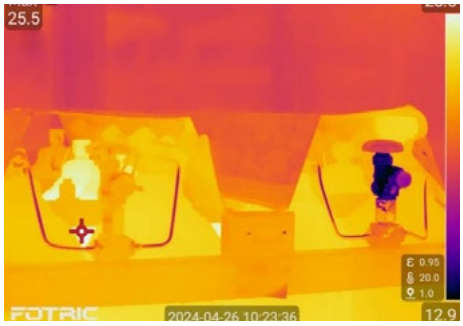
Approach a problem from different perspectives

In industrial inspections, signals can often be ambiguous, and one method may require validation by another. A signal that is unclear in one device might be more evident in another.





For instance, when inspecting compromised insulators, a thermal camera may only show a minor temperature difference —sometimes as small as 1°C—making it easy to overlook. However, an acoustic camera can reveal a much clearer signal, identifying the type of partial discharge.



Conversely, in industrial leak detection, ambient noise and reflections can obscure acoustic readings. In such cases, pairing an acoustic camera with a thermal camera can immediately highlight the thermal anomalies caused by the rapid convection of leaking materials, confirming the presence of a leak.

FOTRIC P-MiX Acoutherm Camera

Robust and Meticulous Thermal Imaging

Thermal Mode is the perfect mechanism to switch to when encountering instruments such as:

Electrical equipment, transmission devices, high-temperature containers, insulation equipment, and other equipment with potential thermal failure risks.

Up to 640x480 Thermal Resolution & IREdge Image Detail Enhancement

Provides clear thermal gradients for easy analysis and preserves thermal details to highlight object contour.

A Wealth of Selectable Lenses

Single view lenses: 46° , 25° , 12° , 7°

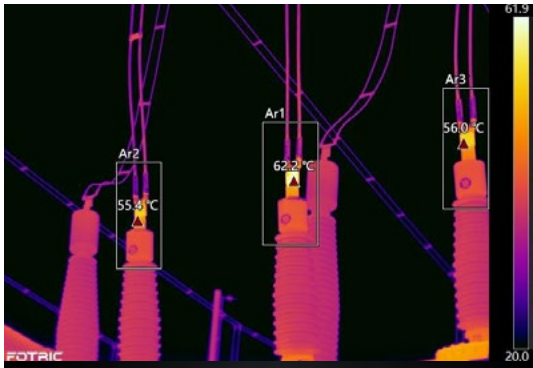
Dual-view lenses: 25° &12° , 25° &7°

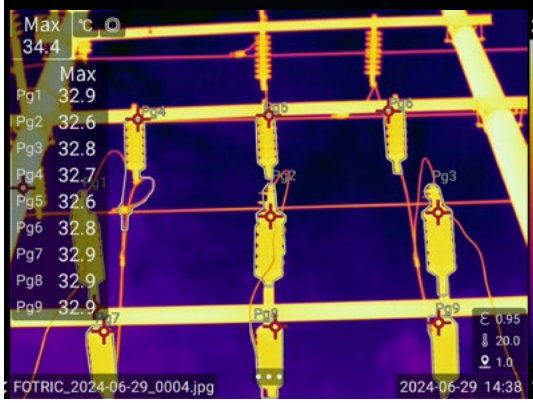
TurboFocus® Smart Focusing

Ensures image clarity at any distance and any position, laying a solid foundation for AI recognition.

MagicThermal®

AI-based auto-recognition and feature contour mark up.





Enhanced adaptability to ambient temperature.

Ensured extraordinary image uniformity.

FOTRIC NemoTAP Temperature Measurement Platform

Improved measurement accuracy.

Bolstered stability in continuous measurement.

Along your inspection route, you may encounter these problems undetectable at a glance:

Partial discharge

Gas pipeline leakage

Abnormal noise/vibration

These issues are made easily detectable by switching to Acoustic Mode.

AI-empowered Acoustic Mode

Up to 162 MEMS digital microphones & 13MP digital camera

Unveil acoustic details with unprecedented clarity.

Partial Discharge Diagnosis

Surface, floating, corona discharge

Leakage Evaluation

Leak level, leak rate, leak cost

Filter Mode

Narrow the focus of the camera to an isolated area, screening out unwanted noise.

Signal Delay Mode（T-FFTD®）

Extrapolate intermittent signals to enhance camera detectability.

In real-world scenarios, many equipment failures result from complex factors. Analyzing from a single dimension may not provide comprehensive or accurate insights.

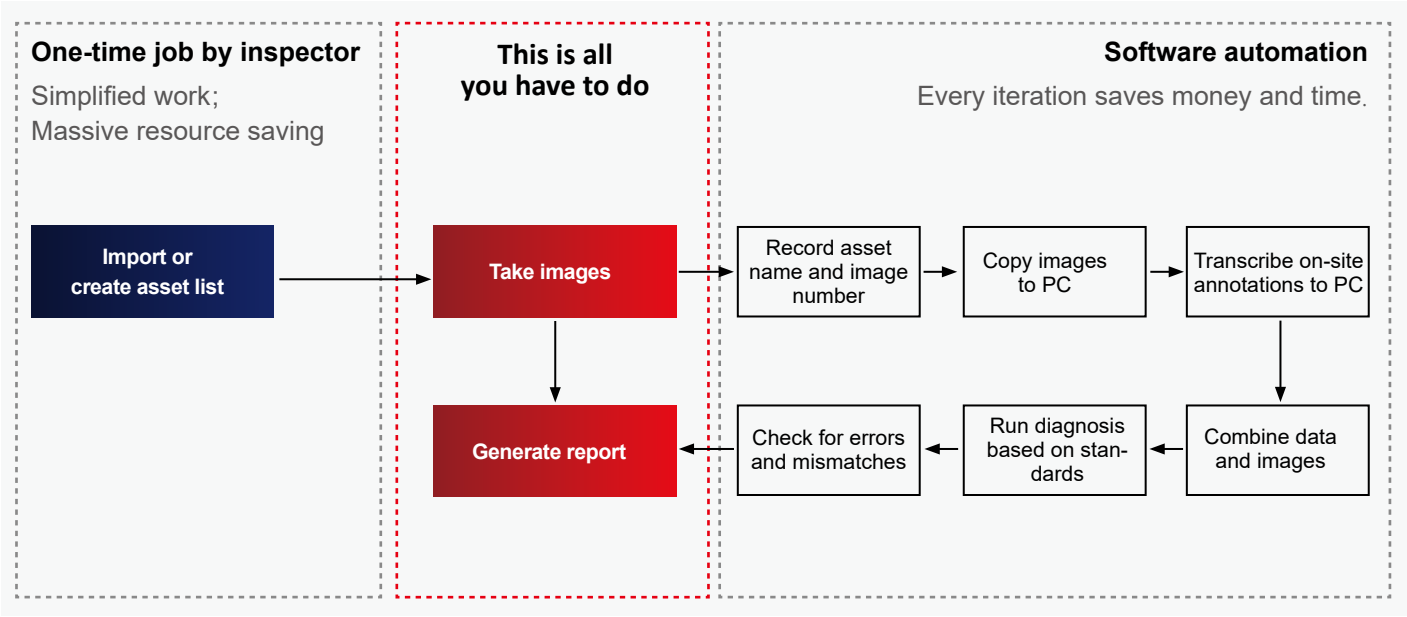
In such cases, activating the device's MiX Mode simultaneously analyzes equipment through both thermal and acoustic dimensions, thereby effectively and rapidly identifying potential hazards.

NaviPdM®

Digital Inspection Assistant

Boost Efficiency with AI-powered Automation

Approximately 90% of inspectors' time during inspections is squandered on repetitive logistical tasks. 'NaviPdM®' will handle those, allowing you to focus on what truly requires your expertise.



AI-powered Asset Recognition & Diagnosis

Asset recognition

- A.I. algorithm on the camera recognizes and tracks previously inspected components with measurement boxes.
- QR code-assisted assets.

Auto-diagnosis

- NaviPdM® automatically run diagnosis on-device based on user-selected standards such as Delta-T or absolute temperature.
- It keeps a dynamic trend graph of the asset's temperature that makes predictive maintenance easy and intuitive.

Ordinary thermal camera

FOTRIC NaviPdM®

Built on National Standards, Trusted by Experts

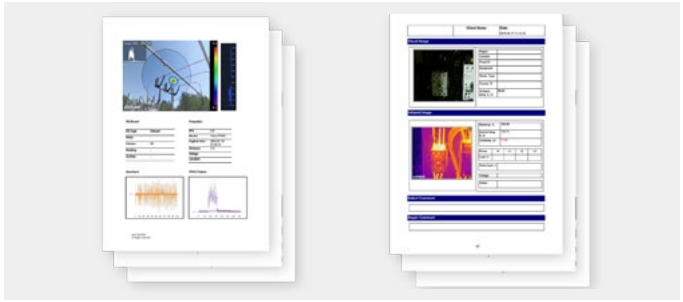
You could painstakingly compare the temperature differences in hundreds of thermal images and assign diagnoses following standards such as NFPA 70B or NETA Specifications or any other nation's standards.

Or you could let NaviPdM® do it for you.

Professional Software

AnalyzIR® Venus

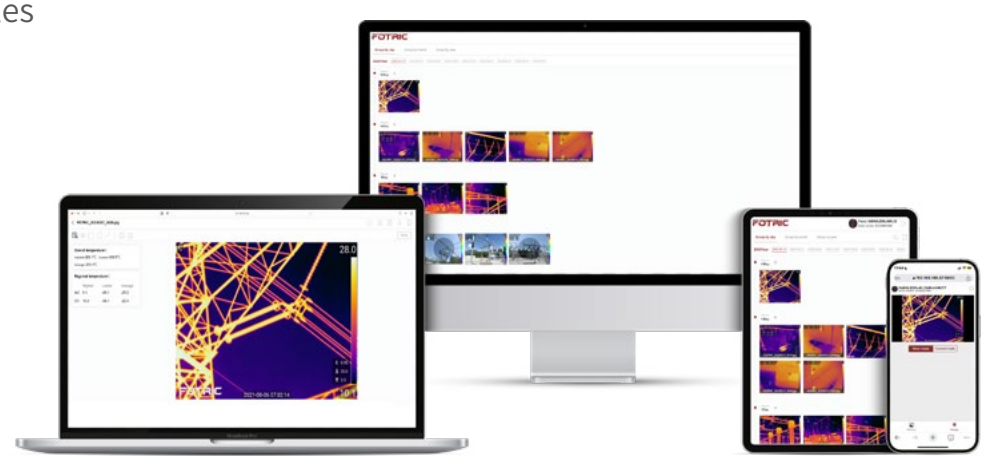
FOTRIC developed AnalyzIR software to distinctively analyze images, videos and other data captured by multiple series of products including thermal cameras, acoustic cameras, and acoutherm imaging devices.



One-click generation of professional reports

IRexplorer ™

- Remote control via WiFi or Self-equipped Hotspot
- No need for installation
- Across any platform Windows Linux MacOS/IOS Android
- Access and edit thermal files



Specifications

Model	P7-MiX	P5-MiX
Unique Features		
Mix Mode	Display thermal imaging and acoustic signals on the same interface, enabling cross verification.	
NaviPdM®	Support, AI inspection assistant	
IRExplorer ™	Support, cross-platform remote control and data transfer	
T-DEF®	Support, thermal and visible light image blend, transparency 0% ~100%	
T-TWB®	Support, tempetrature visual representation normalization	
IREdge	Support, contour detail enhancement	
MagicThermal®	AI-based auto-recognition and feature contour mark up.	
Hardware		
Thermal Imaging Parameters		
Infrared Resolution	640 x 480	384 x 288
Super Resolution	1280 x 960	768 x 576
Detector Type	Uncooled infrared focal plane detector	
Thermal Sensitivity (NETD)	<30mK@30°C (86 °F)	<40mK@30°C (86 °F)
Detector Pitch	17μm	
Spectral Range	8~14μm	
Frame Rate	30Hz	
Field of View (FOV)	25° x 19°	
Spatial Resolution (IFOV)	0.68 mrad	1.14 mrad
Minimum Focus Distance	0.25m(0.82ft)	0.1m(0.33ft)
Focal Length	25mm(0.98'')	15mm(0.59'')
Focus Mode	TurboFocus® system (thermal contrast AF, laser-assisted AF, continuous AF, touch AF); Manual	
Acoustic Imaging Parameters		
Microphone Channels	162 MEMS digital microphone	140 MEMS digital microphone
Acoustic Image FOV	66° x 52°	
Sound Pressure Sensitivity	0.01L/min@0.1MPa，1.5m，ϕ30μm leakage 0.025L/min@0.3MPa，6.5m，ϕ30μm leakage.	0.01L/min@0.1MPa，1.4m，ϕ30μm leakage 0.025L/min@0.3MPa，6.5m，ϕ30μm leakage.
Sound Pressure Measurement Range	10kHz：6~120dB SPL 20kHz：-7~120dB SPL 35kHz：8~120dB SPL 50kHz：-5~120dB SPL	
Acoustic Sampling Rate	200kHz	
Acoustic Refresh Rate	25Hz	
Working Distance	0.3~100m(1~328ft)	

Specifications

Analysis Parameters		
Temperature Analysis		
Temperature Range	-20~120°C (-4~248 °F)，0~650°C (32~1202 °F)，Intelligent range	
Temperature Extension	Support extension: Lowest to -40°C (-40 °F), the measurement accuracy may be greater than 2% in this temperature range; Highest to 2000°C (3632 °F).	Support extension: Lowest to -40°C (-40 °F); the measurement accuracy may be greater than 2% in this temperature range Highest to 1550°C (2822 °F).
Measurement Accuracy	± 1°C (1.8 °F) or ± 1 %, whichever is greater (ambient temp at 25°C /77 °F , temperature range 0° C-100° C/32 °F ~212 °F), ± 2°C /3.6 °F or ± 2 % for other temperature range	± 2°C /3.6 °F or ± 2 %, whichever is greater (ambient temp at 25°C /77 °F)
Measurement Spot	18	10
Measurement Line	15	6
Measurement Area	18	10
Line Temperature Distribution	Support checking line temperature distribution	
Measurement Parameters	Emissivity, Reflected temperature, Ambient temperature, Humidity, Distance and IR window compensation.	
Local Emissivity	Support changing emissivity for individual measurement tool.	
Area Alarm	Area alarm; High temperature alarm and low temperature alarm.	
Delta T/Temperature Rise	Support	
On Device Analysis	Support analyzing radiometric images and videos.	
PC Software	AnalyzIR® NaviPdM®	
Acoustic Measurement Analysis		
Frequency Range	2~100kHz	2~100kHz
Frequency Range Selection	Support preset frequency range for different scenarios for later selection; Support manual adjustment for frequency range.	Support preset frequency range for different scenarios for later selection; Support manual adjustment for frequency range.
Gain Mode	Noisy environment: Used in scenarios where there is interference from other sound sources. Quiet environment: Used in scenarios where there is no interference from other sound sources. The device amplifies weak sound signals to enhance detection sensitivity. Smart gain: The device automatically adjusts the size of the sound signal based on its characteristics.	
Measurement Spot	2	
Measurement Area	2	
Detection Mode	LQ Mode: Displays the leakage level; PD Mode: Displays a PRPD diagram, adapted to different AC frequencies (50/60Hz).	
Default Detection Mode	LQ Detection Mode	
AC Frequency	Selectable between 50 and 60Hz	
Acoustic Image Focus	Masks the surrounding area and focuses only on a selected part of the acoustic image.	
On-device Analysis	The device can directly analyse acoustic images and holographic acoustic videos.	
Analysis Software	AnalyzIR professional thermal and acoustic image analysis software.	

Specifications

Leak Evaluation	Automatic identification of leakage points, automatic evaluation of leakage and annual energy costs.	
Partial Discharge Diagnostics	Automatic diagnosis of discharge types such as surface, floating and tip (corona) discharges.	
Display Screen	5", 1280*720 pixels, LCD touchscreen display with Gorilla Anti-Explosion screen.	
Display Parameters		
Thermal Imaging Display		
Image Mode	Thermal\Digital\PIP\T-DEF® blend	
Palette	16 standard palettes+16 inverted	
Minimum Temperature Span	Auto (Minimum Temp Span 3°C /5.4 °F), Manual (Minimum Temp Span 2°C /3.6 °F), Touch-screen(Minimum Temp Span 2°C /3.6 °F .	
Color Alarm	High temperature, low temperature, and interval isotherms.	
Image Overlay	Display global max, min, avg and measurement parameters.	
High/Low Temperature Tracking	Yes, for both global and regional.	
IREdge	Support thermal-based contour enhancement.	
PIP	Moveable and Resizable	
Digital Zoom	1~16x, continuous	
Acoustic Imaging Display		
Image Mode	Single, Multi, Hologram	
Palette	Support 3 palettes: Red-Blue, Iron, Grey. Supports transparency adjustment.	
Gray-scale Background	Displayed as a digital image in black and white grey scale	
Information Overlay	Displays results of leak evaluation; Displays diagnostic results for type of partial discharge.	
Sound Pressure Tracking	Special marker tracking the maximum sound pressure spot.	
Digital Zoom	1~10x, continuous	1~4x, continuous
General Features and Parameters		
Capture Features		
Digital Camera	Thermal: 5 megapixel, industrial grade digital camera; Acoustic: 13 megapixel, industrial-grade digital camera.	
Storage Card	SD card, hot-swappable, supports up to 1TB	
Single Frame Capture	Support	
Time-lapse Capture	Set the time interval from 2 seconds to 1 hour to save the images of corresponding modes in thermal image mode (IR image, T-DEF®, Picture-in-Picture) and acoustic image mode (single-source, multi-source, holographic) at regular intervals.	
Image Format	JPG (radiometric thermal image), JPEG (holographic acoustic image), JPG (visible light image)	
Video Format	IRS or IRSX (radiometric video), MP4 (non-full radiometric video), MP4 (non-holographic acoustic video)	
Freeze Image	Supports single frame capture, full radiometric video and holographic sound video recording.	
QR Code	QR codes and bar codes can be scanned as tag annotations	
Voice Annotation	Record up to 120 seconds of voice to be saved in thermal image, acoustic image, radiometric and holographic video.	

Specifications

Text Annotation	Enter text via soft keyboard to save to thermal, acoustic, and radiometric video.	
Tags	Enter text via the soft keyboard to save to Thermal and Acoustic images, Radiometric video, which can then be filtered by tags in the gallery.	
Favorite	Click on the 'Favorite' button to save the Favorite status to Thermal, Acoustic images, Radiometric video and highlight it in the gallery preview screen, then filter by 'Favorite' status in the gallery.	
Radiometric Video	Supports the recording of radiometric video for analysis.	
MP4 Recording	Support non-radiometric, digital camera video recording (for viewing only, not for analysis).	
Gallery	Supports viewing, editing, and deleting already recorded images and video files.	
Data Connection		
WiFi	Support 2.4GHz&5GH channel，Support 802.11a/b/g/n/ac	
Bluetooth	Support	
USB	USB Type-C type；USB 3.0 / 2.0 compliant，Support USB OTG.	
HDMI	Micro HDMI type，HDMI 1.4 compliant, Support 1080P imaging video streaming in 60Hz.	
FTP Data Transfer	Connect to the device via WiFi network or the device's own WiFi hotspot, and then access the data in the device via FTP.	
PC Radiometric Video Analysis	Real time radiometric video analysis through AnalayzIR	
Remote Access	Connect to AnalyzIR via USB Type-C port to view full radiometric video streams, and via HDMI HD port to connect to a display or projector.	
Remote Control	Mobile and webpage access via IRExplorer	
Auxiliary Features		
Software and Firmware Upgrade	Support local upgrade through USB	
Laser	Independent key activation; Laser level: 2; Wavelength: 635nm; Power: <1mW; Laser distance: 0.1~50m, Accuracy: d*0.01%±2mm.	
Laser-assisted Area Measurement	Support	
Real-time Distance Measurement	Real-time calculation of the distance to the sound source from the incoming sound signal of the acoustic sensor.	
LED Flash Lamp	Supports torch illumination and flash light mode	
GPS	Support	
Power System		
Battery	3.6V, 9900mAh rechargeable lithium battery, field replaceable.	
Battery Operation Time	Continuous work with Thermal mode ⩾ 4h Continuous work with Acoustic mode ⩾ 2.5h Continuous work with MiX mode ⩾ 2.5h （depends on the environment and workload）	Continuous work ⩾ 4h （depends on the environment and workload）
Charging Method	Support charging dock, and USB direct charging.	
Battery Charging Time	Charge to 90% in 2.5 hours.	
Energy Management	Automatically screen rest time.	
External Power Source	Support using DC 12V to power the device.	

Specifications

Reliability and Certificates		
Safety	SELV(IEC60950-1:2005)	
EMC Compatibility	IEC 61000-4-2	
Enclosure Rating	IP54	
Shock	25g(IEC 60068-2-27:2008)	
Vibration	2g(IEC 60068-2-6:1995)	
RoHS Compliant	Compliant	
Physical Parameters		
Operating Temperature	-20~50°C (-4~122 °F)	
Storage Temperature	-40~70°C (-40~158 °F) without battery	
Relative Humidity	<95%RH	
Dimension (mm)	190mm*181mm*99mm	
Weight (include battery)	1.6kg/3.5lb（without lens）	
Battery Weight	210g/0.46lb	
Casing Material	Hard plastic: PC+ABS, Soft plastic: TPE, Magnesium alloy, Aluminum alloy, Flame retardancy rating: UL94 HB	
Mounting Method	Support UNC 1/4-20 interface for tripod connection	
Warranty		
Warranty	2 years	
Recommended Calibration Interval	2 years for thermal camera; 1 year for acoustic camera.	
Language		
Languages	English, Spanish, German, Traditional Chinese, Korean, Italian, Portuguese	
Configurations		
Packaging	FOTRIC acoutherm camera，Lens, Lens cap, Charging dock, USB to USB-C cable, Micro HDMI to HDMI cable, Documents(certificate of quality, certificate of calibration, warranty card, packing list), Quick start manual, 256G SD card, SD card reader, Power adaptor, 3 pieces of rechargeable lithium battery, Hard carrying case.	FOTRIC acoutherm camera，Lens, Lens cap, Charging dock, USB to USB-C cable, Micro HDMI to HDMI cable, Documents(certificate of quality, certificate of calibration, warranty card, packing list), Quick start manual, 128G SD card, SD card reader, Power adaptor, 3 pieces of rechargeable lithium battery, Hard carrying case.

Lens

Model	IR Resolution	Specifications	Standard	Wide-angle	Telephoto	Ultra-telephoto	Dual view 25/12	Dual view 25/7
P7MiX	640*480	FOV	25° x 19°	46° x 35°	12° x 9°	7° x 5°	25° x 19° \12° x 9°	25° x 19° \7° x 5°
		IFOV	0.68 mrad	1.25 mrad	0.33 mrad	0.19 mrad	0.68 mrad\0.33 mrad	0.68 mrad\0.19 mrad
		Minimum Distance	0.25 m	0.1 m	1 m	3 m	0.25 m\1 m	0.25 m\3 m
		Focal Length	24.8 mm	13.7 mm	51.2 mm	82.5 mm	25.1 mm\50.7 mm	25.4 mm\76.8 mm
		Measurement Range	-20~120°C , 0~700°C , 300~2000°C			-20~120°C , 0~700°C		
P5MiX	384*288	FOV	25° x 19°	46° x 35°	15° x 11°	7° x 5°	25° *19° \12° *9°	——
		IFOV	1.14 mrad	2.09 mrad	0.68 mrd	0.32 mrad	1.14mrad\0.55mrad	——
		Minimum Distance	0.1 m	0.1 m	0.25 m	1 m	0.25m\1m	——
		Focal Length	15 mm	8 mm	24.8 mm	51.2 mm	15mm\31mm	——
		Measurement Range	-20~120°C , 0~700°C , 300~1550°C			-20~120°C , 0~700°C		——

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