FOTRIC
CONNECTING THE DIGITAL FUTURE

A Symphony of Sight and Sound

Where Professional Thermal Imaging Meets Professional Acoustic Technology

FOTRIC P7 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.**

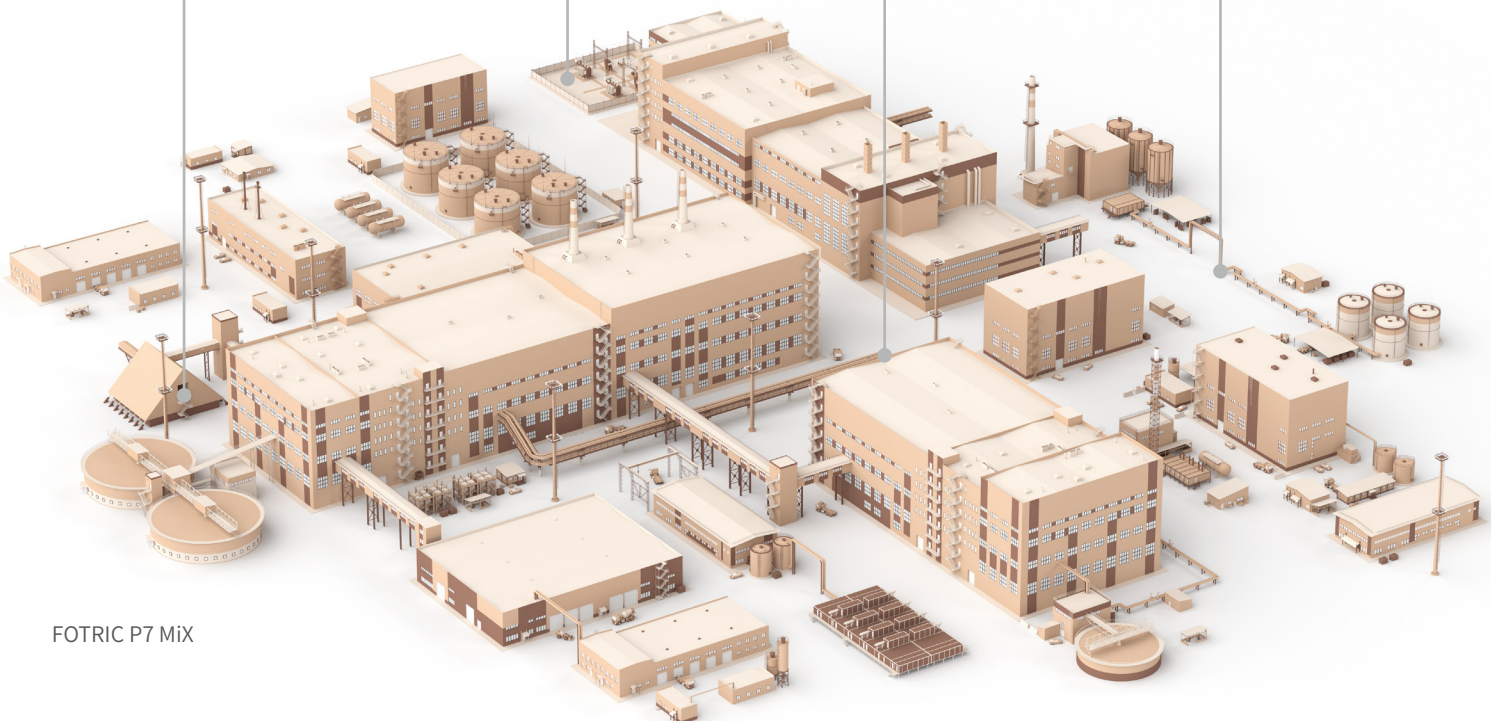How do you keep track of all the potential hazards?

Electrical equipment heating
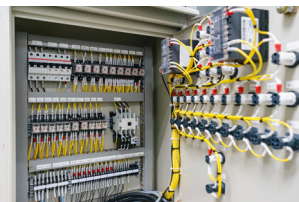
Substation partial discharge

Pipeline leakage

Noise and vibration

FOTRIC P7 MiX

During routine facility inspections,

several pieces of equipment

are required.

These include a 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 Acoutherm Camera has arrived.

What is the Acoutherm camera?

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

FOTRIC P7 MiX

Versatile Design

During an inspection, certain areas of the facility or placement of equipment can be hard to reach—let alone to capture a necessary image.

The FOTRIC P7 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, staff is kept safer, and your photo quality is no longer compromised by difficult angles.

FOTRIC P7 MiX

Meticulous Measurement Flawless 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.

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°
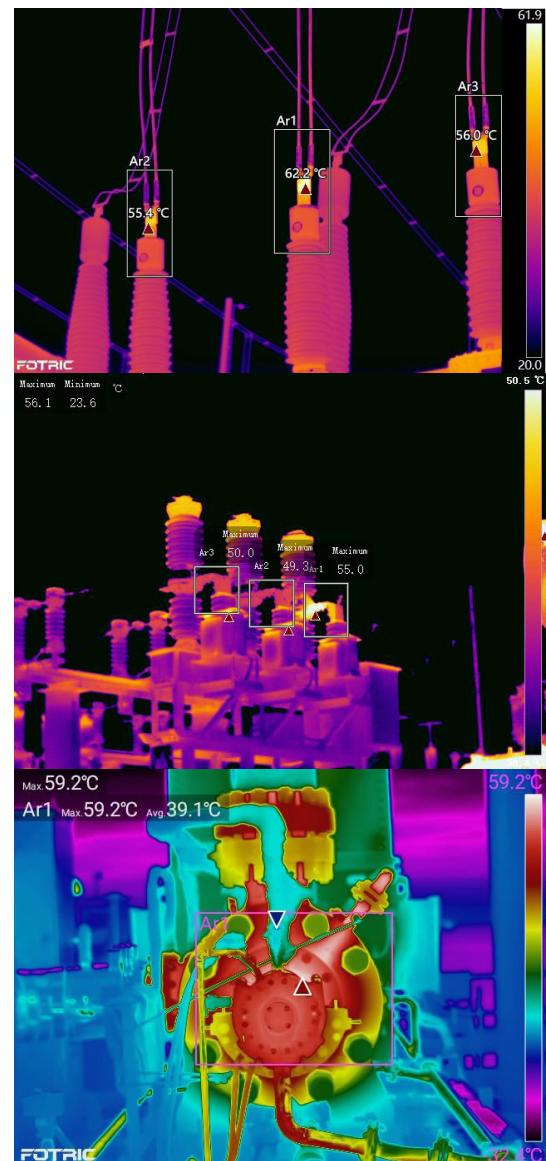
Dual-view lenses: 25° &12° , 25° &7°

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.

FOTRIC NemoTAP
Temperature Measurement Platform

- Enhanced adaptability to ambient temperature:
  -20℃ ~50℃

- Improved measurement accuracy at different distances:
  ±2° C (0-20 meters)

- Ensured extraordinary image uniformity:
  ±0.4℃

- Bolstered stability in continuous measurement, tackling the issue of temperature drift:
  ±0.5℃

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

Partial discharge
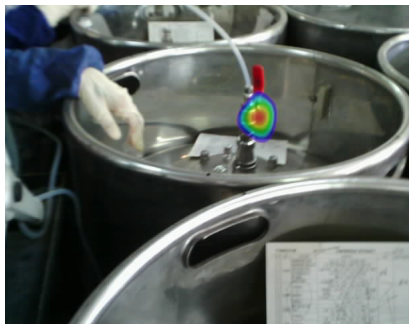
Gas pipeline leakage

Abnormal noise/vibration

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

AI-empowered Acoustic Mode

162
MEMS digital microphones

1.3MP
Digital camera

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.

FOTRIC P7 MiX

Approach a problem from different perspectives

The MiX mode of the FOTRIC acoustic-thermal imaging device introduces a novel diagnostic approach tailored to real-world scenarios. During the inspection process, the device's 5-inch LCD screen simultaneously displays real-time thermal and acoustic images.

In MiX mode, the thermal distribution and acoustic patterns of the device under test appear simultaneously, enabling comprehensive and accurate analysis of equipment faults from multiple perspectives. This enhances inspection efficiency and quality.

On-device Analysis

During inspections, you can conveniently annotate images of suspected problems using the bookmark feature, allowing for easy retrieval of bookmarked images at any time to utilize the onboard analysis function.

You can also utilize FOTRIC's professional **AnalyzIR** software on a PC for detailed analysis.

FOTRIC P7 MiX

AnalyzIR Professional Analysis Software

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

We continually upgrade and enhance our specialized software, responding to valuable user feedback and the increasing demand for precision technology. AnalyzIR has become an invaluable tool for FOTRIC's industrial and research users.

FOTRIC P7 MiX
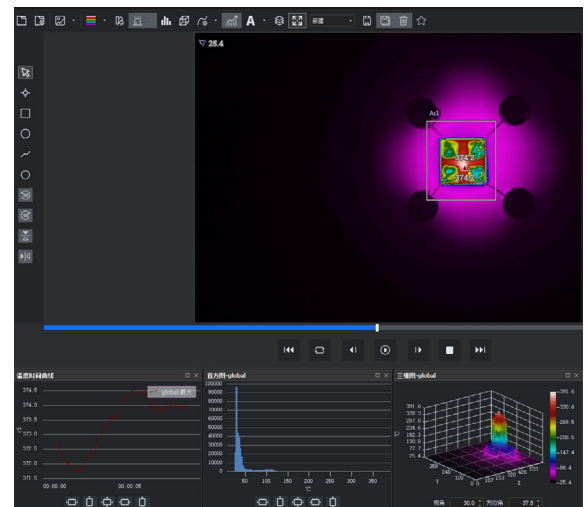
Specifications

Thermal Imaging Parameters	
Infrared Resolution	640*480
Super Resolution	1280*960
Detector Type	Uncooled infrared focal plane detector
Thermal sensitivity (NETD)	<30mK@30° C
Detector Pitch	17μm
Infrared Spectral Band	7~14μm
Frame Rate	30Hz
Field of View (FOV)	25° *19°
Spatial Resolution (IFOV)	0.68 mrad
Minimum Focus Distance	0.25m
Focal Lengths	25mm
Focus Mode	Automatic, Manual

Acoustic Imaging Parameters	
Microphone Channels	162 MEMS digital microphone
Acoustic Image FOV	66° *52°
Localization Error	<0.05m@1m，40kHz
Lateral Resolution	<0.45m@1m，40kHz
Main-to-side-lobe Suppression Ratio	>10dB@40kHz
Sound Pressure Sensitivity	0.01L/min@0.1MPa，1.5m，φ30μm leakage 0.025L/min@0.3MPa，6.5m，φ30μm leakage 0.045L/min@0.3MPa，7.5m，φ40μm leakage
Measureable Sound Pressure Range	10kHz：6~120dB SPL 15kHz：-3~120dB SPL 20kHz：-7~120dB SPL 25kHz：-13~120dB SPL 30kHz：-4~120dB SPL 35kHz：8~120dB SPL 40kHz：2~120dB SPL 45kHz：-2~120dB SPL 50kHz：-5~120dB SPL 55kHz：-2~120dB SPL 60kHz：3~120dB SPL 65kHz：2~120dB SPL 70kHz：8~120dB SPL 75kHz：7~120dB SPL
Sound Sampling Rate	200kHz
Acoustic Refresh Rate	25Hz
Working distance	0.3~100m

Temperature Analysis	
Temperature Range	-20~700℃
Temperature Range	-20~120℃，0~700℃，Intelligent range
Temperature Expansion	Support extension: Lowest to -40℃ ; Highest to 2000° C（Not applicable to dual-view lenses）
Measurement Accuracy	± 1℃ or ± 1 %, whichever is greater (ambient temp at 25℃ , temperature range 0° C-100° C), ± 2℃ or ± 2 % for other temperature range
Measurement Spots	18
Measurement Lines	15
Measurement Areas	18

Specifications

Line Temp Distribution	Support checking line temperature distribution
Measurement Parameters	Emissivity, Reflected temperature, Ambient temperature, Humidity, Distance and IR window compensation.
Partial Emissivity	Support changing emissivity for individual measurement tool.
ROI 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	
Positioning Frequency Range	2~100kHz
Frequency Range Selection	Support preset frequency range for different scenarios ; 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 point	2
Measurement frame	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
Default AC Frequency	60Hz
Acoustic Focusing (Filter Mode)	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.
Leakage Evaluation	Automatic identification of leakage points, automatic evaluation of the leak and annual energy costs.
Local Discharge Diagnostics	Automatic diagnosis of discharge types such as surface, floating and tip (corona) discharges.

Display	
Display Screen	5", 1280*720 pixels, IPS LCD touchscreen display with Gorilla Anti-Explosion screen.

Thermal Imaging Display	
Image Mode	Thermal\Digital\Picture-in-Picture\T-DEF®
Palette	16 standard palettes: Grey、Iron10、Iron、Rainbow、Grey10、GreyRed、MidGrey、Yellow、Rain、Rain10、Blue、GlowBow、Medical、Medical10、MidGreen、Prism.
Inverted Palettes	16
Minimum Temperature Span	Auto (Minimum Temp Span 3℃), Manual (Minimum Temp Span 2℃), Touch-screen(Minimum Temp Span 2℃ .
Color Alarm	High temperature, low temperature, and interval isotherms.
Image Overlay	Display global max, min, avg temperature and measurement parameters.
Hot and Cold Spot Tracing	Yes, for both global and regional.
IREdge	Support thermal-based contour enhancement.
T-DEF®	Adjustable transparency 0% ~100%
PIP	Moveable and Resizable
T-TWB®	Tempetrature visual representation normalization option
Digital Zoom	1~16x, continuous

Specifications

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 visible image in black and white grey scale
Information Overlay	Displays results of leak assessment; Displays diagnostic results for PD type.
Max Sound Pressure Tracking	Special marker tracking the maximum sound pressure spot.
T-FFTD®	Capture instantaneous sound signals and prolong its trace.

Capture Features	
Digital Camera	Thermal: 5 megapixel, industrial grade digital camera; Acoustic: 13 megapixel, industrial-grade digital camera.
Storage Card	SD card, hot-swappable, expandable up to 2TB
Single frame capture	Support
Time-lapse	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), ACS (holographic acoustic 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.
Text Annotation	Enter text via soft keyboard to save to thermal, acoustic, radiometric and holographic video.
Tags	Enter text via the soft keyboard to save to Thermal and Acoustic images, Radiometric and Holographic 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 and Holographic 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 for non-radiometric, visible video recording (for viewing only, not for analysis).
Hologram Video Recording	Supports holographic video recording for analysis, up to 7 minutes in length.
Non-Hologram Video Recording	Supports non-holographic acoustic 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 Transmission	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.

Specifications

Remote Control	
Mobile Access	Via IRExplorer
Webpage Access	Via IRExplorer

Auxiliary Features	
Software and Firmware Upgrade	Support on OTA upgrade and local upgrade through USB
TurboFocus®	TurboFocus ™ Speedy Intelligent Autofocus system for continuous, laser distance, graphic contrast,manual focus.
Ultrasound Conversion	Converting the inaudible sound of ultrasound into audible sound in real time.
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
Headphones	Real-time monitoring of incoming sound signals from acoustic sensors via Bluetooth headset.
GPS	Support BeiDou/GPS/GLONASS satellite positioning, location information can be saved to thermal image, acoustic image, full radiation video and holographic acoustic video.
Compass	Supports 360° orientation and orientation information can be saved to thermal and acoustic images, radiometric and holographic videos.
LED Flash Lamp	Supports illumination mode and flash light mode

Unique features	
MagicThermal®	AI-based auto-recognition and feature contour mark up.

Power System	
Battery	3.6V, 9900mAh rechargeable lithium battery, field replaceable.
Battery Operation Time	Continuous work ≥ 2.5h （depends on the environment and work load)
Charging Methods	Support charging dock, and USB direct charging.
Battery Charging Time	Charge to 90% in 2.5 hours.
Energy Save	Automatic screen rest.
External Power Source	Support using DC 12V to power the device.

Reliability and Certificates	
Safety	SELV(GB 4943.1-2011/IEC60950-1:2005)
EMC Compatibility	GB/T17626.2/IEC 61000-4-2
Enclosure Rating	IP40
Shock	25g(GB/T 2423.5-2019/IEC 60068-2-27:2008)
Vibration	2g(GB/T 2423.10-2008/IEC 60068-2-6:1995)
RoHS Compliant	Compliant

Physical Parameters	
Operation Temperature	-20~50℃
Storage Temperature	-40~70℃ without battery
Relative Humidity	<95%RH
Dimension (mm)	190mm*181mm*99mm
Weight (include battery)	1.6kg （without lens)
Battery Weight	210g
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

Specifications

Warranty	
Warranty	2 years
Recommended Calibration Cycle	2 years for thermal camera; 1 year for acoustic camera.
Language	
Supported Language	English, Spanish, Korean, Italian, German, Portuguese, Traditional Chinese
Configurations	
Standard Configuration	FOTRIC acoutherm camera，Lens, Lens cap, Charging dock, USB to USB-C cable, Micro HDIM to HDMI cable, Documents(certificate of quality, certificate of calibration, warranty card, packing list), user manual,SD card, SD card reader, Power adaptor, 2 pieces of rechargeable lithium battery, Softbag, Hard carrying case.

FOTRIC

CONNECTING THE DIGITAL FUTURE

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