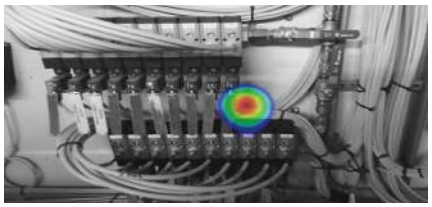
FLIR Si124™

Industrial Acoustic Imaging Camera



FLIR Si124 is an intelligent, easy-to-use imaging system designed to visually show pressurized leaks in compressed air systems and display partial discharge problems in high-voltage electrical systems. This lightweight, one-handed solution can help utility, manufacturing, and engineering professionals identify efficiency loss and potential failures up to 10 times faster than traditional methods. Built with 124 microphones and a frequency range that covers audible and ultrasound (2 kHz to 35 kHz), the Si124 sees through background noise commonly found in industrial environments to produce precise acoustic imagery. The acoustic image is overlaid in real time on top of a digital camera picture, which allows the user to accurately pinpoint the source of the sound and classify problems. The Si124 features a plugin that enables users to import acoustic images to FLIR Thermal Studio suite for offline editing, analysis, and advanced report creation. Field analysis and reporting can also be done using the FLIR Acoustic Camera Viewer cloud service. Adopting the FLIR Si124 as part of a regular maintenance routine, professionals can identify issues fast—helping utilities keep the power flowing and manufacturing operations going.

FIND LEAKS 10x FASTER

Reduce electricity waste and optimize equipment performance

- Pinpoint costly compressed air leaks in noisy industrial environments
- Instantly view the leak rate (l/min or CFM) and estimate yearly energy loss
- Extend compressor life by eliminating wasted output

SEE THE SOUND OF PD AND CORONA

Minimize equipment failures and downtime that result from PD/corona issues

- Classify partial discharge type including negative corona, positive and negative corona, floating discharge, and surface or internal discharge
- Identify corona discharge day or night, allowing quick replacement of defective components before a catastrophic failure
- Operate the lightweight camera with one hand

VISUALIZE, CLASSIFY, QUANTIFY

Calculate critical decision-making data instantly with FLIR Thermal Studio suite or the FLIR Acoustic Camera Viewer cloud analytics software

- Automatically upload, store, and back up images and data to the cloud and conduct deep analysis
- Quickly calculate estimated yearly energy expense caused by a compressed air/vacuum leak
- Assess whether service or replacement are needed by classifying PD/corona types instantly
- Determine the level of threat from partial discharge with AI powered automatic discharge classification, severity assessment, and recommended action for partial discharge inspections

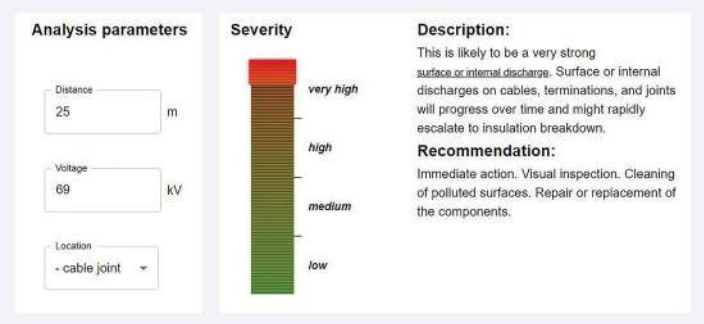
CREATE ADVANCED REPORTS

Edit and analyze images and create extensive reports with FLIR Thermal Studio suite

- Customize templates and combine acoustic and thermal images in the same report
- Preview, open, and post-process images and make adjustments in reports; continue to work where you left off the day before
- Includes predefined report templates
- Features Rapid Report generator

SPECIFICATIONS

FLIR Si124	
Acoustic measurement	124 low-noise MEMS microphones, real-time sound visualization
Dynamic range, low limit	<-15 dB (frequency-dependent)
Dynamic range, high limit	>120 dB (frequency-dependent)
Bandwidth	2 kHz to 35 kHz, adjustable range
Distance	From 0.3 m (1 ft) up to 130 m (430 ft)
Discharge detection	Automatic detection 50 / 60 Hz
Discharge classification	• Negative corona • Positive and negative corona • Floating discharge • Surface or internal discharge PRPD pattern provided in FLIR Acoustic Camera Viewer or FLIR Thermal Studio.
Severity assessment	Automatic AI-based severity assessment including recommended actions in FLIR Acoustic Camera Viewer or FLIR Thermal Studio
Leak localization and detection	Automatic leak recognition including estimated leak size and annual cost
Leak rate	In typical industrial environment: >0,032 l/min @ 3 bar from 3 m (9.8 ft) >0,05 l/min @ 3 bar from 10 m (32.8 ft) Absolute minimum detection in quiet environment: 0.016 l/min @ 1.2 bar from 0.3 m (1 ft)
User interface	
Display	Size: 5 in, 800 × 480 pixels Color: 24 bit RGB Brightness: 1000 cd/m² (adjustable)
Input device	Resistive touchscreen
Power On indicator	LED (red)
Video image resolution	800 × 480
Camera FOV	62° × 49°
Video frame rate	25 fps
Acoustic image frame rate	30 fps
Zoom	2x digital zoom



Analysis and reporting	
Online	FLIR Acoustic Camera Viewer (cloud service)
Offline	FLIR Thermal Studio (desktop software)
Communication and data storage	
Data transfer	• Wi-Fi 2.4 GHz and 5 GHz IEEE 802.11.b/g/n/ac wireless LAN • USB memory stick
Camera software update	• Automatic over Wi-Fi • USB via computer
Still images	Yes
Video recording	Yes, up to 5 minutes
Storage, internal	32 GB / 2000 snapshots (typical) SD card, non-removable
Storage, external	8 GB / 500 snapshots (typical) USB mass storage, provided with device
Power supply	
Camera power input	Nominal input voltage 12 V Max input: 15 V, 2.5 A
External battery	LiFePO 12 V, 7 Ah, 84 Wh Usage: Up to 7 hours (depends on ambient conditions) Charge time: 4 to 6 hours Max output: 13.8 V, 4.0 A
Battery charger	Input: 100 to 240 V AC, 50/60 Hz, 1.3 A Max output: 14.6 V, 4.0 A
Internal battery (only for camera backup use)	Li-Ion 6 Wh
Environmental data	
Operating temperature range	-10°C to 50°C (14°F to 122°F)
Storage temperature range	-20°C to 70°C (-4°F to 158°F)
Relative humidity	Recommended 0 to 90%
Physical data	
Camera size	273 mm × 170 mm × 125 mm (10.7 in × 6.7 in × 4.9 in)
Camera weight	Camera: 980 g (2.2 lb)
Battery size	90 mm × 145 mm × 65 mm (3.5 in × 5.7 in × 2.6 in)
Battery weight	985 g (2.2 lb)
Total weight, incl. all accessories	2.9 kg (6.4 lb)
Battery cord length	0.75 m (2.46 ft), extended 1.5 m (4.92 ft)

For a complete list of specifications, go to www.flir.com/Si124

This product is subject to United States export regulations and may require US authorization prior to export, reexport, or transfer to non-US persons or parties. Diversion contrary to US law is prohibited. For assistance with confirming the Jurisdiction & Classification of Teledyne FLIR, LLC products, please contact exportquestions@flir.com. ©2022 Teledyne FLIR, LLC. All rights reserved.

Revised on 02/10/22
Si124_Datasheet-LTR