MPAC208
Megger Professional Acoustic Imager

- 208 MEMS Microphone array
- 100 kHz bandwidth
- Detection range up to 200 m
- 13 MP optical camera resolution
- 8" Touchscreen
- 10 Hour battery life (2 x 5 hr battery packs)
- Gas Leak, PD and Mechanical modes
- Optional thermal imaging modules

DESCRIPTION

The Megger MPAC208 Professional Acoustic Imaging Camera is a state-of-the-art diagnostic tool designed to detect and analyse ultrasonic sound patterns, enabling quick, reliable identification of gas leaks, mechanical faults, and electrical partial discharges in a variety of industrial environments. With advanced sound localisation and processing capabilities, this device streamlines maintenance workflows and enhances safety.

FEATURES

Precise Leak Detection

Effortlessly pinpoints pressurised and vacuum gas leaks, minimizing downtime and reducing energy losses.

Advanced Electrical Inspection

Includes Phase Resolved Partial Discharge (PRPD) analysis for clear identification and discrimination between different types of partial discharge in electrical systems.

Mechanical Fault Identification

Detects mechanical deterioration in rotating equipment, valves, and bearings through ultrasound monitoring, enhancing predictive maintenance.

Quantifiable Leak Rate Assessment

Built-in analytics quantify leak rates, helping estimate energy loss and prioritise repairs based on cost impact.

Noise Suppression with Focus Function

Focus feature minimizes unwanted background interference, providing clear, actionable acoustic images, even in noisy industrial environments.

Ultrasound to Audible Sound Conversion

Converts inaudible ultrasonic emissions to audible sound for intuitive identification and pinpointing of leak sources.

SoundScan™ Directional Guidance

Proprietary SoundScan™ technology directs the user to the primary sound source, even when it is outside the camera's visual field.

Field-Upgradable Firmware

Stay current with easy firmware updates via USB-C or microSD, ensuring long-term device performance and compatibility.

Acoustic Analysis Software

Included desktop software enables comprehensive analysis, reporting, and data management post-inspection.

Time-Domain Graph Display

Visualize and analyse ultrasonic signals in real-time with the time-domain graph, helping operators identify signal patterns, duration, and transient events for enhanced diagnostic accuracy.

Acoustic Spectrogram Visualisation

The built-in acoustic spectrogram displays frequency content over time, allowing users to easily distinguish between different sound sources and track changes in frequency behaviour, especially in complex environments.

Optional Thermal Imaging Modules

Add-on thermal imaging modules enables a side-by-side view of thermal and acoustic images, allowing for simultaneous detection of temperature anomalies and acoustic events, improving fault correlation and identification.

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VERIFICATION

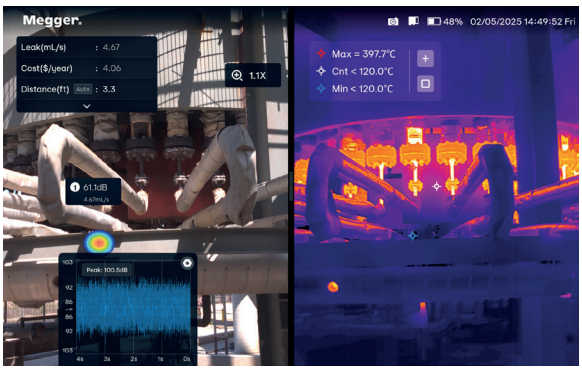
To ensure the MPAC cameras are operating within specified parameters, the Megger MPAC-V acoustic camera verifier can be used. This optional tool gives the operator the ability to verify the frequency and SPL measurements of the camera using a dedicated verification procedure. In addition, the camera can automatically check the operation of each MEMS microphone, to ensure optimum performance.

APPLICATIONS

- Leak detection in compressed air and gas systems
- Predictive maintenance of mechanical systems
- High-voltage equipment inspections
- Industrial reliability and energy efficiency auditing

ACOUSTIC SPECIFICATIONS

- 208 channel MEMS microphone array
- Frequency range: 2 kHz to 100 kHz
- Detection range: 0.5 to 200 m (1 – 656 ft)
- Min leak detection rate:
  0.0019 l/min @ 2.5 m 5 Bar
  0.0022 l/min @ 6.0 m 5 Bar
- Leak cost quantification
- SPL Range 25.7 dBA to 132.5 dBA
- Dynamic Range 28 dB to 132 dB (adjustable)



These images shows the thermal capability with the optional thermal imaging module, MPAC-TM.

SPECIFICATIONS

Camera

Resolution	13 MP
Camera Focal Length	4.3 mm (0.17”)
Nominal Frame Rate	25 fps
Field of View (FOV)	Horizontal: 66° x Vertical: 52°
LED Light	4 Ultra-bright LEDs

Display

Resolution	1920 x 1200
Size	8 inches
Brightness	700 nits
Touchscreen	Capacitive touch screen
Zoom	6x digital zoom
Standard palettes	Grayscale, Ironbow, Rainbow

Communication and Storage

Internal Storage	64 GB
External Storage	64 GB external microSD card
Image Format	JPG
Audio Format	WAV
Video Format	mp4
Video Length	Up to 10 min
Digital Export	microSD (TF) card/Wi-Fi/ USB-C flash drive
Data Transfer	Wi-Fi, USB-C Flash drive, Bluetooth® USB-C Cable, microSD (TF) card

Battery

Battery Type	Li-Ion smart battery with charge indicator
Battery Capacity	6600 mAH, 7.2 V Rechargeable Li-ion
Battery Life	5 hours under full load state
Charge Time	USB Type-C port – 2.15 Hrs Charging cradle – 1.15 Hrs

Hardware Ports

USB-C 1	USB 3.0 for charging, HDMI, data export
USB-C 2	USB 2.0, USB sensor, Thermal Module
3.5 mm audio jack	Headset output
TF/microSD card slot	64 GB card supplied
Analog input	4 Channel external analog sensor

Environmental

Operating Temperature	-20 °C to +50 °C
Relative Humidity	10% to 95% (no condensation)
Storage Temperature	-20 °C to +70 °C
Charging Temperature	10 °C to +45 °C
Restriction of Hazardous Substances (RoHS) Compliant	Yes

MPAC208
Megger Professional Acoustic Imager

General Specification

Size	270 x 190 x 51 mm (10.6" x 7.5" x 2")
Weight	1.4 kg (3 lbs)
Bluetooth	BT 5.2
Environmental rating	IP54
Warranty	2 years
Supported Languages	English, Dutch, French, Simplified Chinese, German, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Arabic, Macedonian, Romanian, Bulgarian

Safety

General Safety	IEC 61010-1
Electromagnetic Compatibility (EMC)	
International	IEC 61326-1: Portable Electromagnetic Environment IEC 61326-2-2 CISPR 11: Group 1, Class A
Vibration	2g, IEC 60068-2-6
Shock	25g, IEC 60068-2-27
Drop test	1.2 m

Software

Report types	Gas/Electricity, ISO 50001-compliant
Analysis	Waveform, spectrum, spectrogram, leakage assessment, PRPD type, PRPD spectrum. Thermal image analysis (with optional thermal module MPAC-TM).

ORDERING INFORMATION

Description	Part number
MPAC208 acoustic imaging camera	1016-917
Included Accessories	
Hand straps	
Shoulder strap	
Universal mains power charger	
USB-C charging cable	
Headphones	
Carry case	
64 GB microSD card	
USB-A microSD card reader	
8 GB USB-C/USB-A memory stick	
Cleaning tool	
Smart battery pack (x2)	
Smart battery charger	
Acoustic & Thermal Analysis Software	

Description	Part number
Optional Accessories	
Thermal imaging module (364 x 288 resolution)	1016-920
Thermal imaging module (640 x 512 resolution)	1016-921
MPAC-V acoustic camera verifier	1016-919
Spare smart battery packs	1016-924
MPAC208 Pro Kit with MPAC208 Acoustic Camera, MPAC-V Verifier/Ultrasound Generator and Thermal Camera Module (640 x 512 resolution)	1016-922

MPAC208_DS_EN_V02

Megger®

MPAC-V
Professional Acoustic Camera Verifier

- **Sound pressure level verifier**
- **Frequency response verification**
- **Acoustic cloud image alignment verification**
- **Multiple preloaded sound files to verify correct camera performance**
- **Works with MPAC128 and MPAC208**

DESCRIPTION

The Megger Professional Acoustic Camera Verifier, MPAC-V, is a compact, portable ultrasonic sound generator. It is designed to check the alignment of the acoustic cloud image, the accuracy of the SPL (Sound Pressure Level) measurement and frequency response on the Megger MPAC range of acoustic cameras.

It has button controls to power on/off the MPAC-V, play/pause an audio file, increase/decrease the volume and switch between the .wav audio files, pre-loaded onto the included MicroSD/TF card.

Key is the inclusion of a Verification sound file that automatically runs through the pre-set frequency bands that mirror the bands selected by the MPAC cameras when running in verification mode, automating the verification process.

In addition, sound files to replicate common partial discharge, using either 50 Hz or 60 Hz as the fundamental, help prove the MPAC cameras detection processor.

The MPAC-V supports a maximum signal output sampling rate of 96 kHz 24 bit, with a rated frequency range from 20 kHz to 48 kHz.

The product features a lightweight, sturdy and durable all-aluminium alloy case and can be powered by either the supplied USB-C 5 V power adaptor or four AA batteries.

FEATURES

- 8 audio files including the camera verification file, preset mechanical frequency files, white noise and gas leak, as well as samples of Suspension, Corona and Surface Partial Discharge – all at both 50 and 60 Hz.
- Used to verify the operational status of the Megger MPACs (Megger Professional Acoustic imaging Cameras).
- A dual-port USB-C power adaptor and USB-C cable are supplied as standard
- Designed to fit into the Megger MPAC cameras protective carry case.

MPAC-V
Professional Acoustic Camera Verifier

SPECIFICATIONS

ACOUSTIC SPECIFICATIONS

Sampling rate	96 kHz
Frequency range	20 k – 48 kHz
Operating frequency	25 kHz ± 5 kHz
Supported file type	.wav

POWER SUPPLY

Port	USB-C
Rated voltage	5 V (DC)
Rated current	0.5 A
Battery type	AA (Alkaline or Ni-Cad batteries are recommended: 4 Required)

GENERAL SPECIFICATIONS

Dimensions	173 x 80 x 35 mm
Weight	600 g
Tripod mounting point	¼-inch thread
Screen	LCD – 2.8 inches
Resolution	320 x 240
Operating conditions	-20 to +60 °C, 10 – 95 %
Storage conditions	-20 to +70 °C, 10 – 95 %
Certification	CE-EMC, CE-RoHS
Storage size	Maximum 64 GB MicroSD card

ORDERING INFORMATION

Description	Part number
MPAC-V	1016-919

MPAC-V_DS_EN_V02

Megger®

MPAC-TM384 and MPAC-TM640
Thermal Modules for MPAC208

- 384 x 288 or 640 x 512 Thermal resolution
- Plug and play integration with MPAC208
- Simple USB-C keyed connection
- Thermal reporting using the Analyst software
- Robust aluminum housing

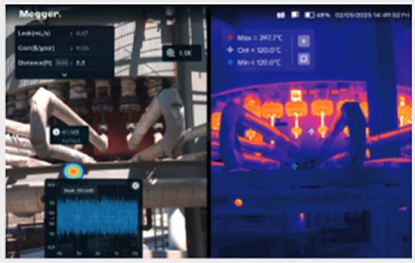
DESCRIPTION

The MPAC-TM384 and MPAC-TM640 Thermal Modules are designed to be used with Meggers MPAC208 Acoustic Imaging Camera, and give users the flexibility to perform thermal imaging alongside the existing acoustic imaging capability. The Thermal Modules are connected to the MPAC208 using a simple, keyed, USB-C port at the top of the camera. The MPAC firmware already supports the use of both modules, so no further set-up is required.

The MPAC-TM384 includes a comprehensive 384 x 288 thermal sensor, with the MPAC-TM640 stepping up to a professional 640 x 512 sensor. Both units are capable of generating high-resolution thermal images and will capture all the temperature data across the image. Through the MPAC208 user interface, relevant parameters can be set to improve the accuracy of the readings, as well as recording vital detail on the asset being measured. A x6 digital zoom is also available to aid pinpointing of issues.

All thermal images and videos captured whilst using the MPAC-TM modules can be imported into the Analyst software, along with the acoustic data, for further analysis and detailed report generation.

Example of thermal image taken with the MPAC-TM640.



Produce reports with the MPAC208 and include thermal images and results.

ORDERING INFORMATION

Description	Part number
MPAC-TM384 (384 x 288 sensor)	1016-920
MPAC-TM640 (640 x 512 sensor)	1016-921

SALES OFFICE
Megger Limited

MPAC-TM384_DS_EN_V02

ISO 9001

Megger

MPAC-TM384 and MPAC-TM640
Thermal Modules for MPAC208

SPECIFICATIONS

	MPAC-TM384	MPAC-TM640
Imaging and optics		
Detector type	8 to 14 µm	8 to 14 µm
Infrared resolution	384*288 @ 17 µm	640*512 @ 12 µm
NETD	60 mK @25 °CF#1.0	60 mK @25 °CF#1.0
Frame rate	25 Hz	25 Hz
Focal length	13 mm	13 mm
Field of view	28.4° * 21.4°	32.9° * 26.6°
IFOV	1.79 mrad	0.923 mrad
Min. object distance	0.1 m	0.14 m
D:S	60:1	90:1
Focusing mode	Manual	Manual
Digital zoom	1x - 6x	1x - 6x
Temperature range	-20 °C to +120 °C 120°C to +550°C	-20 °C to +120 °C 120°C to +550°C
Measurement and analysis		
Measurement accuracy	±3%(±3% of the range, take the maximum value)	±3%(±3% of the range, take the maximum value)
Parameter settings	Temperature scale, Temperature unit, Distance, Emissivity, Thermal correction, Ambient temperature, Reflection, Humidity	Temperature scale, Temperature unit, Distance, Emissivity, Thermal correction, Ambient temperature, Reflection, Humidity
Image display		
Thermal palette	White-hot, Black-hot, Ironbow, HC Rainbow, Rainbow, Grayscale	White-hot, Black-hot, Ironbow, HC Rainbow, Rainbow, Grayscale
Power		
Power	DC 5 V, 0.05 A	DC 5 V, 0.05 A
Port	USB-C	USB-C
Environment parameters		
Operating temperature	-20 °C to +50 °C	-20 °C to +50 °C
IP rating	IP53	IP53
Drop test	1.2 m	1.2 m
Certification	CE, RoHS	CE, RoHS
Physical parameters		
Size	35 x 50 x 42 mm	35 x 50 x 42 mm
Weight	56 g	60 g
Material	Aluminium	Aluminium