



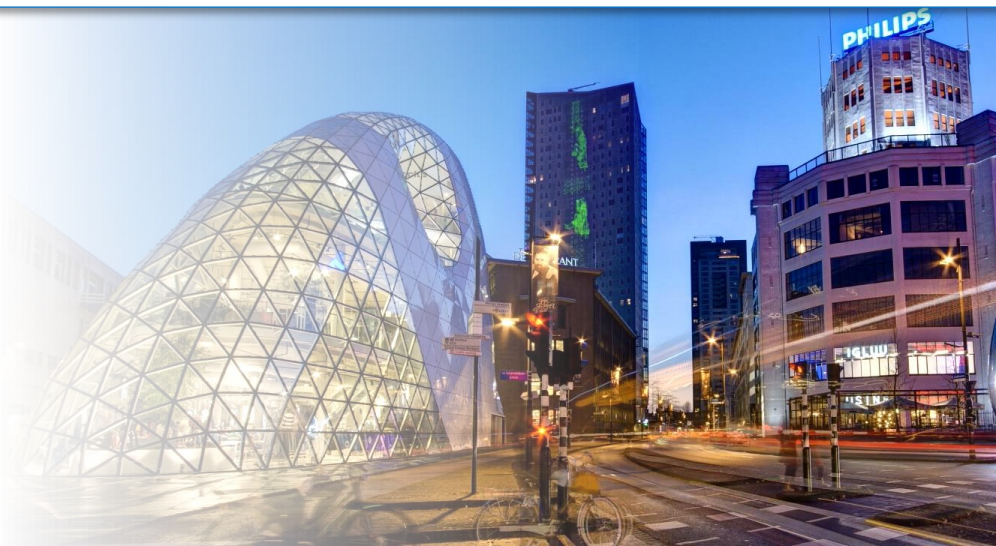
# Sorama

Make the World Sound Right

## Sorama Smart City Listener

**So·ra·ma** [so-rah-mah] noun

1. lit.trans. Greek; concat. Sonos & orama; create wide view of sound
2. Company name, founded in 2009 as spin-off of Eindhoven university of technology
3. Unique technology to make sound insightful



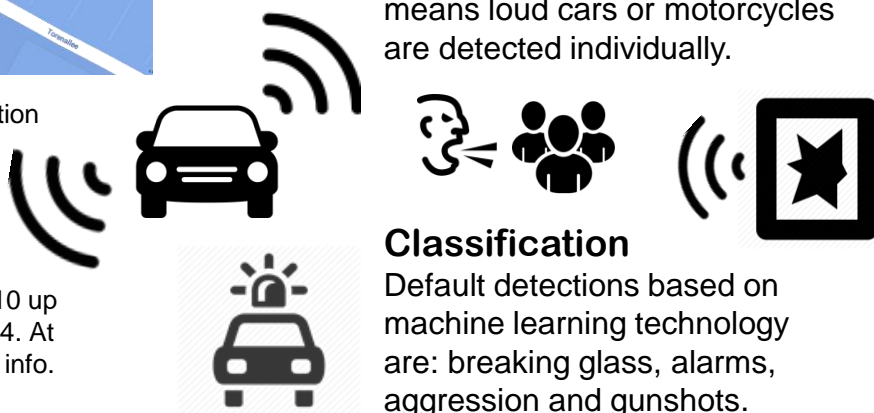
## Smart City Listener

Cities are full of sound and sound contains tons of information. However, sound pollution is also the number 2nd most harmful environmental factor for humans after air pollution. Insights are required to track the source of pollution and make smart use of the information contained in your city sounds. The Sorama Smart City Listener makes sound insightful by localization, quantification and classification of sound. Sorama sound cameras enable a city to improve the sound environment and improve safety and security.



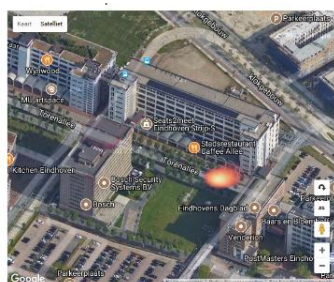
Depending on accuracy and resolution requirements, sound cameras are positioned throughout an area.

Default installation heights are 2.5 – 15 meters. Detection areas with high accuracy range from 10x10 up to 60x60 meters with one Listener64. At larger angles it provides directional info.

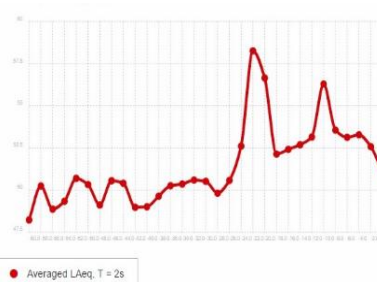


## Integration

Sorama provides an API for system integrators and partners for easy integration into a larger platform. Features:



Heatmaps showing most noisy areas over time



Sound level and intensity (LAeq) measurements



Controlling video cameras based on type and location of sound

**AXIS**  
COMMUNICATIONS



## Sorama Listener64 specifications

### Physical Properties

Size	180 x 180 x 85mm	LxWxD
Weight	0.3 kg ex. housing	Typical package 0,95 kg
Connection	Ethernet	IEEE 1588V2 sync IEEE 802.3af-2003 PoE

### Acoustic Properties

# of microphone channels	64	Parallel sampling
Frequency range	20 Hz – 20 kHz	$\Delta f = 1$ Hz
Spatial resolution	20 mm	Inter sensor distance
Measurement area	16 x 16 cm	Water- and dustproof

### Microphones

Type	Akustica AKU242	Embedded ADC with PDM
SNR (A-weighted, at 1 kHz)	56 dB per channel	Max. 74 dB for device
Sensitivity	-26 dBFS +/- 4	At 1 kHz, 94 dB SPL
Acoustic Overload Point	120 dB SPL	At 1 kHz

### Measurement Features

Spectrum Analysis	SPL 1 Hz – 20 kHz	dB/dB(A) SPL, $\Delta f = 1$ Hz
Raytracing method		Acoustic beamforming



front

Water- and dustproof, wall mountable housing



back

