



# Qsources

Smarter & faster measurements  
for more efficiency at work

INFRA-QSOURCES

## Qref

EXTREME LIGHTWEIGHT  
SOUND POWER REFERENCE SOURCE



Sound power reference sources are the calibrators for the acoustics of spaces whilst they are used to determine sound power identification.

Qref is a unique sound source for regular verification of acoustic rooms for product testing, machinery testing, anechoic rooms, reverberant rooms. Another main application for this product is sound power identification on-site of for example installed machinery or larger installations. The small size, weight and signal control on the Qsources Qref make it specially suitable for this type of sound power identification in difficult spaces. Exceeding ISO 3747; Qref allows an even more accurate identification with multiple positions on all the test-object faces or surfaces. Qref can also be applied for Statistical Energy Analysis (SEA) type of measurements of rooms, halls, other acoustically coupled systems and other airborne excitation applications.



**EXTREME LIGHTWEIGHT**  
1.1 KG.



**ISO 3747**  
**ISO 6926**



**106 MM. DIAMETER**  
**165 MM. HEIGHT**



**WORK EFFICIENCY**  
**EASY & FAST SET UP BY 1 SINGLE PERSON**



**BROADBAND**  
**50-8000 Hz**



**UNIQUE POSITIONING**  
**ARBITRARY INCLINATION**



Qsources Qref is a unique sound power reference for several reasons:

- a well defined monopole source with a high acoustic impedance
- driver and integrated sensor technology allowing the application of different signals (e.g. equalized white/pink noise, chirps, sine sweeps, MLS)
- exceeds the ISO 6926 requirements in the 50-8000 Hz bands
- incomparably lighter and smaller than any other sound power reference of similar output level on the market
- Electronic control is sensing, correcting, steering the driver, and steering the real time power proportional sound power signal

The set includes a dedicated Infra-Qsources QamR amplifier and is delivered with an individual certification according to ISO 6926.

[www.Qsources.be](http://www.Qsources.be)



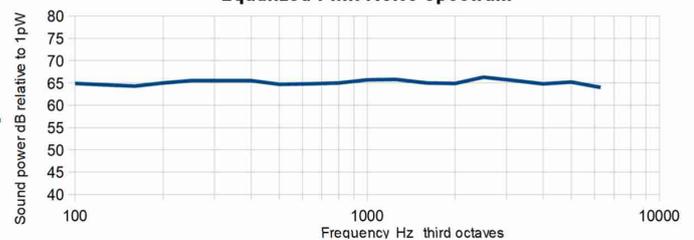
Qsources

Qref

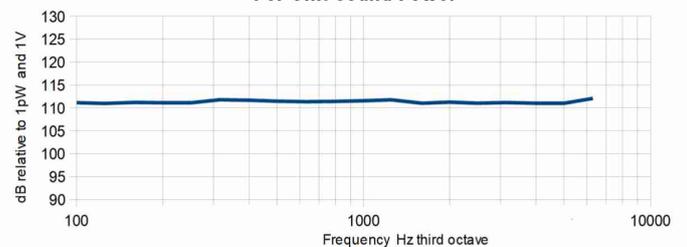
SPECIFICATIONS*	
Description	Sound power reference source
Weight	1.1 kg
Frequency range in third octave bands	50-8000 Hz (1/3 octaves)
Height	165mm
Diameter	106mm
Omni directionality (ISO 16283)	Axial $\pm 1$ dB from 50-8000Hz, Tangential $\pm 5$ dB from 50-8000 Hz better than ISO 6926
Directivity Index (ISO 6929)	
Sound power level	88 dB $\pm$ 1 dB Lw, 2 minutes**  78 dB $\pm$ 1 dB Lw, 10minutes**
Output level stability	better than ISO 6926
Typical Power requirement	Only operation with QamR power amplifier
Temperature Protection	✓
Power overload Protection	✓
Main Application area	Machinery Noise, Room calibration, Microphone array reference
Main Application examples	Laboratories, Production site, Machinery or residential room
Number of Speakers	1
Q4 driver technology	✓
Seperate subwoofer needed	no
Ambient temperature range	15 to 40 degrees celsius
Tripod Included	✓
Soft transportation case included	✓
Qualitative, Robust Chassis material	✓
Industry Standards	ISO 16283 / 6926 / 3741 / 3747 / 14275 / ANSI/ASA 51251



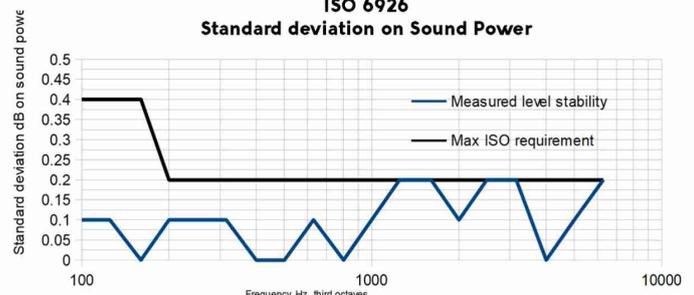
Equalized Pink Noise Spectrum



Output reference Voltage Per Unit Sound Power



ISO 6926 Standard deviation on Sound Power



Legends

✓ = Intended application

√ = Possible application

\* These specifications may be adapted if necessary to improve the quality.  
 \*\* When driven with Qam generated low crest-factor pink noise at 22 Celsius ambient temperature or lower.  
 \*\*\* For maximum performance a dedicated power amplifier type Qam is available from Infra-Qsources  
 \*\*\*\* For a minimal level of 70dB + 10dB margin SPL OA  
 \*\*\*\*\* Range in free sight. The range can be influenced by metal structures.

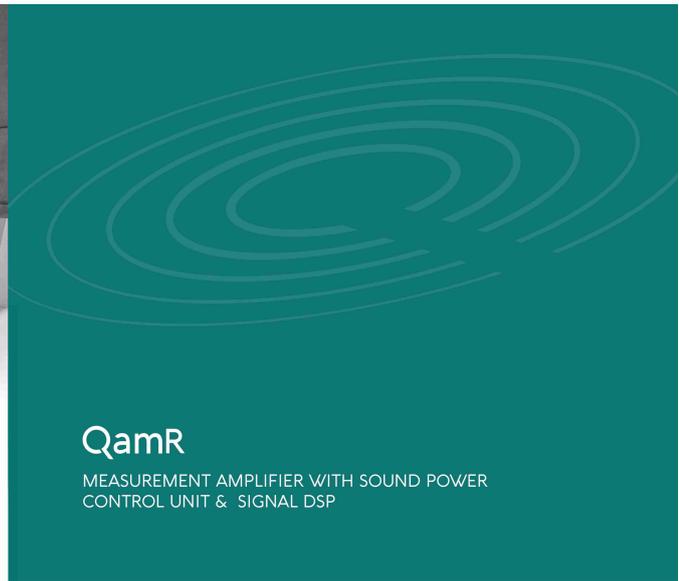
POTENTIAL APPLICATION AREAS	
Building accoustic	✓
Road-Railway infrastructure	✓
Aerospace	✓
Marine	✓
Military	✓

MEASUREMENT TECHNIQUES	
Room + Hall acoustics	✓
Reverberation	✓
On-site machinery sound power	✓
Microphone array measurements	✓



Qsources

INFRA-QSOURCES



### QamR

MEASUREMENT AMPLIFIER WITH SOUND POWER CONTROL UNIT & SIGNAL DSP

### QamR

#### SPECIFICATIONS\*

Description	Measurement amplifier with sound power control unit & signal DSP
Weight	2.2 kg
Max. Power output	250 Watt
Frequency range	20-40000Hz +0/-3 dB
Dimensions	245 x 190 x 90 mm
Internal noise generator	√ white + pink Noise
Minimum load impedance:	4 Ohm (or 2 Ohm below 200 watt)
External signal	√ max. 0.4 Volt sspk
Equalization function	√
Linearisation of the freq. Spectrum	√
Amplification setting accuracy	+/-0.5dB
Max. Peak voltage output	44 Volt sspk
Temperature + overload Protection	√
Mains power requirement	500 Watt
	100V to 250V / 50/60Hz
Integrated Remote Control (FR)	√ Range up to 100 metres *
Recommended to use with	Qref / Qmir

QamR is fully DSP Controlled sound power amplifier for noise and vibration measurements with a high power / weight ratio for maximum portability. The measurement amplifier is individually calibrated to the Qmir or Qref sound source. The button controlled operation is fast, straightforward and stable. Internally generated white/pink noise signals are available. There is a fixed ratio between the emitted sound power and the reference signal from the amplifier, which allows the user to monitor and measure the reference signal & calculate the sound power output for any signal and level. Remote activation and de-activation up to 100m. range in free sight.

#### PART OF:



www.Qsources.be