



INSTRUCTION SHEET FOR NOISE MEASUREMENT

Carefully read all instructions and warnings before recording noise data.
Call QRDC at 952-556-5205 between 9:00 am and 5:00 pm CST if further clarification is needed.

Customer Information					
Name:	<input type="text"/>	Phone:	<input type="text"/>		
Address:	<input type="text"/>	Email:	<input type="text"/>		
City:	<input type="text"/>	State:	<input type="text"/>	Zip:	<input type="text"/>

PACKAGE CONTENT		
Note: Inspect the package as soon as it is received. If you find any damage, notify the delivering carrier immediately and contact QRDC. Carriers have the right to refuse claims for damage if it's not promptly identified.		
1. Noise Measurement Unit	3. Data Logging Form	5. Return Label
2. Instruction Sheet (this document)	4. Packaging Material	6. Cover Letter

This packet contains instructions for using the QRDC Noise Monitoring Kit. When you ordered the kit, you selected specific services that are offered with the unit. For each service ordered, utilize the corresponding instruction sheet included here.

Also included in this package are data logging forms. All information that you record should be on these forms. Please fill out a separate form for each noise issue that you have, and write legibly. Additional forms have been included so that you can re-write a logging form if necessary.

Please see the attached example forms to get a clear understanding of what is expected of you, the customer, in order for your data to be properly analyzed.

WARNING AN INHERENT DANGER EXISTS WITH HIGH SOUND LEVEL and may require hearing protective aid. If any such conditions exist that may jeopardize the safety of yourself or others or if you are unsure about proper equipment use, **DO NOT USE THE EQUIPMENT** and call QRDC at 952-556-5205. **FAILURE TO COMPLY WITH THESE SAFETY INSTRUCTIONS OR THOSE OF OSHA AND YOUR FEDERAL, STATE OR LOCAL GOVERNMENTS, MAY RESULT IN HEARING LOSS.** QRDC accepts no liability for failure to comply.

DISCLAIMER: QRDC, Inc. assumes no liability, either expressed or implied, through recommended actions. All events subsequent to recommendations are the responsibility of the client, and not QRDC, Inc.

The results obtained by use of QRDC's Noise Monitoring Kit are subject to the quality of collected data. Due to uncontrolled environmental conditions, QRDC offers no guarantee that conclusive results will be achieved. QRDC will provide the customer with analysis of the collected data and corresponding conclusions and results based on the collected data and requested services. In the event that the analysis does not yield conclusive results, the customer will NOT be refunded any payments for services.



Advanced Services

□ **Sound Pressure Level (SPL) (Service Code 200)**

Sound Pressure: The Sound Pressure is the force (N) of sound on a surface area (m²) perpendicular to the direction of the sound. The SI-units for the Sound Pressure are N/m² or Pa.

Sound is usually measured with microphones responding proportionally to the sound pressure - p. The power in a sound wave goes as the square of the pressure.

The Sound Pressure Level: The lowest sound pressure possible to hear is approximately 2×10^{-5} Pa (20 micro Pascal, 0.02 mPa), 2 ten billionths of an atmosphere.

It therefore convenient to express the sound pressure as a logarithmic decibel scale related to this lowest human hearable sound – 2×10^{-5} Pa, 0 dB.

The Sound Pressure Level can be expressed as:

$$L_p = 10 \log \left(\frac{p^2}{p_{ref}^2} \right) = 20 \log \left(\frac{p}{p_{ref}} \right)$$

where:

L_p = sound pressure level (dB)

p = sound pressure (Pa)

$p_{ref} = 2 \times 10^{-5}$ - reference sound pressure (Pa)

If the pressure is doubled, the sound pressure level is increased by 6 dB (=20 log (2)).

For each location that you would like to collect data, please follow the below procedure:

1. Identify the location of interest (likely the place where you hear the loudest noise). Place the data collector on a flat and stable surface. If you know what the source of the sound is, aim the recording device (metal mesh) at the source, about 1 meter away. If you are in a room and don't know where or which direction the noise comes from, place the data collector at the center of the room.
2. Press the SPL button and record the reading on the log sheet. Note that this reading may vary somewhat ... just record what you observe to be an average value. Note also that there is a "MAX" feature on the unit, which (if enabled) you should disable by pressing the button once to toggle it off.
3. Record the date, time, and location on the log sheet.
4. Shut down the sound level display (right) by holding down the "SPL" button until the screen reads "OFF".