

PULSE Array Acoustics, Proximal Holography BZ-5963

Uses

- Noise source identification (NSI) on small objects
- Transient calculations (optional)
- Data can be used to create animated, 3D noise maps in PULSE™ Array Acoustics Post-processing

Features

- Conformal mapping of:
 - displacement
 - particle velocity
 - sound pressure
 - sound intensity
 - reactive intensity
- Accurate noise mapping of non-planar objects
- High-resolution map, even at low frequencies
- Near-field holography
- Uses equivalent source method (ESM)

Description

PULSE Array Acoustics, Proximal Holography BZ-5963 is conformal noise-mapping software using the ESM algorithm. BZ-5963 is an option for PULSE Array Acoustics, Acoustic Holography Type 8607. See Product Data [BP 2144](#) for information about array-based NSI software for the PULSE Array Acoustics platform, including conformal mapping.

As with other conformal mapping procedures, BZ-5963 superimposes a conformal noise-map created from patch array measurements onto a 3D model of the noise source. However, Proximal Holography BZ-5963 produces the noise map with a single array measurement. As all the signals are obtained simultaneously, transient calculations can be performed to create animated, 3D noise maps.

Conformal Array

For good results with BZ-5963, it is important that the conformal array covers the whole noise source. Microphones in the array are placed close to the noise source, typically 2 cm, and spacing between the microphones is about the same. Therefore, BZ-5963 is ideal for small objects such as electric motors.

The size and design of the array varies according to the object being mapped. A file containing the microphone placement for the array is delivered for each custom setup. The microphone recommended for use in the array is 10 kHz Array Microphone Type 4957, see Product Data [BP 2172](#) for microphone specifications.



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Prerequisites

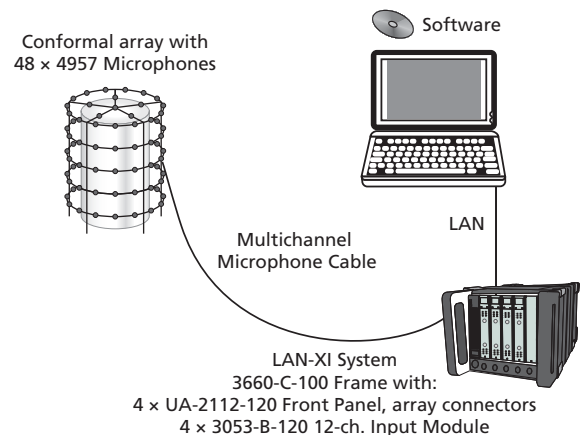
A 3D model of the noise source is required, both to design the array and to use BZ-5963. An initial graphics exchange specification (IGES) file from a computer-aided design (CAD) model provides all the needed information. Another option is to use 3D Creator Positioning System WU-0695-W-001 (Product Data [BP 2383](#)) to create digital models.

Typical 48-channel System

A typical system for PULSE Array Acoustics, Proximal Holography BZ-5963 requires the following Brüel & Kjær equipment:

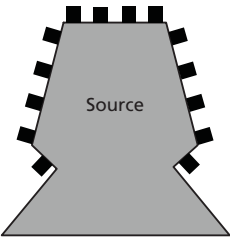
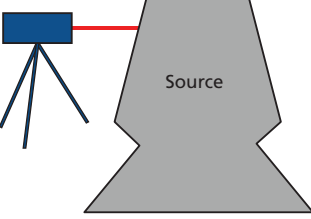
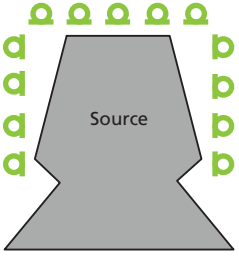
- PULSE Array Acoustics software
- LAN-XI Data Acquisition Hardware
- 48 microphones

Fig. 1 Typical 48-channel setup



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Table 1 Comparison of vibration measurement techniques

	Accelerometers	Laser Doppler Vibrometer	Microphone Array
			
Transient analysis	Yes	No	Yes
Works on rotating objects	No	Yes	Yes
Works on very warm objects	No	Yes	Yes
Direct surface measurement	Yes	Yes	No
Detects acoustic leakages	No	No	Yes

Specifications – PULSE Array Acoustics, Proximal Holography BZ-5963

SOFTWARE PREREQUISITES

- Type 8607-N: PULSE Array Acoustics, Acoustic Holography
- Type 7770-N: PULSE FFT Analysis
- Type 7761-N: PULSE Acoustic Test Consultant
- Type 3099-A-N: PULSE Front-end Driver

Configuration

OPERATING SYSTEM REQUIREMENTS

Microsoft® Windows® 8.1 Pro or Enterprise (x64) or Windows® 7 Pro, Enterprise or Ultimate (x32 and x64)

OTHER SOFTWARE REQUIREMENTS

Microsoft® Office 2013

Microsoft® SQL Server® 2012 Express (SP2) (included in installation)

COMPUTER CONFIGURATION/DATA

ACQUISITION FRONT ENDS

As for PULSE, see Software for PULSE System Data (BU 0229)

Ordering Information

BZ-5963 PULSE Array Acoustics, Proximal Holography

Custom systems featuring BZ-5963 are designed and ordered via Project Sales*

Typical 48-channel system

PULSE SOFTWARE†

- Type 8607-N: PULSE Array Acoustics, Acoustic Holography
- Type 7770-N: PULSE FFT Analysis
- Type 7761-N: PULSE Acoustic Test Consultant
- Type 3099-A-N: PULSE Front-end Driver

LAN-XI DATA ACQUISITION HARDWARE FOR 48-CHANNELS‡

- Type 7200-C-SE1: DELL Latitude Standard Notebook
- Type 3660-C-100: 5-module LAN-XI Front-end Frame with GPS
- 4 × UA-2112-120: LAN-XI Front Panel with array connectors, 2 × LEMO (7-pin), 12-channel, detachable
- 4 × Type 3053-B-120: LAN-XI 12-channel Input Module 25.6 kHz (CCLD, V)

48-CHANNEL CONFORMAL ARRAY

- 48 × Type 4957: 10 kHz Array Microphone

SOFTWARE MAINTENANCE AND SUPPORT

Available for all software packages. See the PULSE Software Maintenance and Support

Agreement Product Data (BP 1800) for further details.

- M1-8607-N: Maintenance and support for Type 8607-N, one year
- M1-7770-N: Maintenance and support for Type 7770-N, one year
- M1-7761-N: Maintenance and support for Type 7761-N, one year
- M1-3099-A-N: Maintenance and support for Type 3099-A-N

Optional Accessories

- WU-0695-W-001 3D Creator Positioning System
- BZ-5636 PULSE Array Acoustics, Transient Calculations

* Project Sales Office email address: pso@bksv.com

† The following documents contain more information on the required software components for Proximal Holography BZ-5963:

Product Data: PULSE Array-based Noise Source Identification Solutions (BP 2144), including Acoustic Holography Type 8607

System Data: Software for PULSE (BU 0229), including Type 7770

Product Data: Acoustic Test Consultant with Noise Source Identification Type 7761 (BP 1908)

Product Data: PULSE Front-end Driver Type 3099-A (BP 2398)

‡ The following documents contain more information on LAN-XI Data Acquisition Hardware:

Product Data: LAN-XI Data Acquisition Hardware (BP 2215), including frame, input module and battery module

Product Data: LAN-XI Front Panels UA-2100 to 2105, UA-2107 to 2144, UA-2116 and UA-2120 (BP 2421)

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