# Electromagnetic shaker system

## F4/Z820WA

### SPECIFICATIONS

| | | |
|---|---|---|
| **Usable frequency range** | | 10 - 7,500 Hz |
| **Blocked force output[1]** | | see graph on page 2 |
| **Maximum continuous current** | | 1.5 amps rms |
| **Maximum continuous current with air cooling** | | 2.5 amps rms |
| **Nominal electrical impedance** | | 25 Ω |
| **DC electrical resistance** | | 13 Ω |
| **Resonance frequency, blocked** | | 40 Hz, nominal |
| **Forced air cooling pressure, max** | | 25 psi (1.7 bar) |
| **Connector[2]** | | Bendix PT06A-8-3S |
| **Cable** | | R4M-8B-8B-J9B-10 |
| **Accelerometer nominal values:** | | |
| **Voltage sensitivity** | | 100 mV/g |
| **Frequency response:** | **±0.5 dB** | 10 - 2,000 Hz |
| | **±1.0 dB** | 6 - 3,000 Hz |
| | **±3.0 dB** | 3 - 6,000 Hz |
| **Power requirements: voltage source** | | 18 - 30 VDC |
| **current regulating diode** | | 2 - 10 mA |
| **Bias output voltage, nominal** | | 12 VDC |
| **Output impedance** | | <100 Ω |
| **Electrical noise, equiv. g:** | | |
| **Spectral** | **10 Hz** | 100 µg/√Hz |
| | **100 Hz** | 10 µg/√Hz |
| | **1,000 Hz** | 1 µg/√Hz |
| **Connector[2]** | | BNC |
| **Output cable** | | R2-2-J5A-10 |
| **Force gage nominal values:** | | |
| **Voltage sensitivity** | | 100 mV/lb (22.5 mV/N) |
| **Power requirements: voltage source** | | 18 - 30 VDC |
| **current regulating diode** | | 2 - 10 mA |
| **Bias output voltage, nominal** | | 12 VDC |
| **Output impedance** | | <100 Ω |
| **Electrical noise, equiv. lb:** | | |
| **Spectral** | **10 Hz** | 60 µlb/√Hz (270 µN/√Hz) |
| | **100 Hz** | 10 µlb/√Hz (44 µN/√Hz) |
| | **1,000 Hz** | 1 µlb/√Hz (4.4 µN/√Hz) |
| **Connector[2]** | | BNC |
| **Output cable** | | R2-2-J5A-10 |
| **Mass below force gage (including stud)** | | 140 grams (0.31 lb) |
| **Effective stiffness[3]** | | >500 x $10^6$ lb/in (87 x $10^9$ N/m) |
| **Diameter of mounting surface** | | 1.62 in. (4.1 cm) |
| **Mounting stud, stainless steel** | | 3/8-16 UNC |
| **Recommended screw down torque** | | 70 lb/in (7.9 N/m) |
| **Temperature range** | | 0° to +80°C |
| **Base material** | | anodized aluminum |
| **Weight: Parts rigidly attached to structure** | | 2.0 lb (0.9 kg) |
| **Suspended weight** | | 4.8 lb (2.2 kg) |
| **Total weight** | | 6.8 lb (3.1 kg) |

### Key features

- Reaction-type shaker generates very large dynamic forces for research and testing
- Air-cooling feature for operation at high output levels for long periods
- Designed for operation over a wide range of audio frequencies
- Manufactured in ISO 9001 facility

See reverse for dimensions, graphs and system diagram.

**Notes:** [1] Blocked force output refers to the force output against a mass of infinite mechanical impedance.

[2] Refers to connector at shaker end of cable.

[3] The design of the Z820WA is such that the limiting stiffness which can be measured with an accuracy of 10% is determined by the local stiffness of the specimen under test. For a thick steel specimen this stiffness is approximately one tenth of the actual local stiffness or 7,000,000 lb/in; for an aluminum specimen it is approximately 2,000,000 lb/in.

**Accessories supplied:** All input and output cables; mounting stud; spanner wrench; adaptor cable

Note: Due to continuous process improvement, specifications are subject to change without notice. This document is cleared for public release.

**Wilcoxon Sensing Technologies**
An Amphenol Company

8435 Progress Drive
Frederick, MD 21701
USA

Tel: +1 (301) 330-8811
Fax: +1 (301) 330-8873
info@wilcoxon.com

buy.wilcoxon.com
www.wilcoxon.com

98393 Rev.L 10/21

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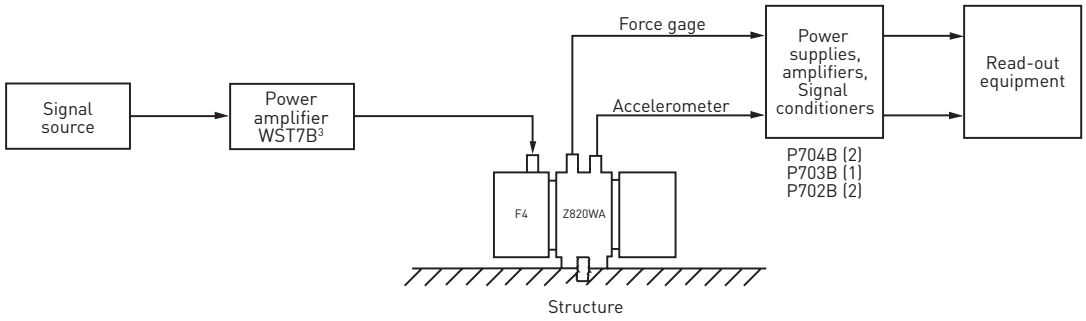
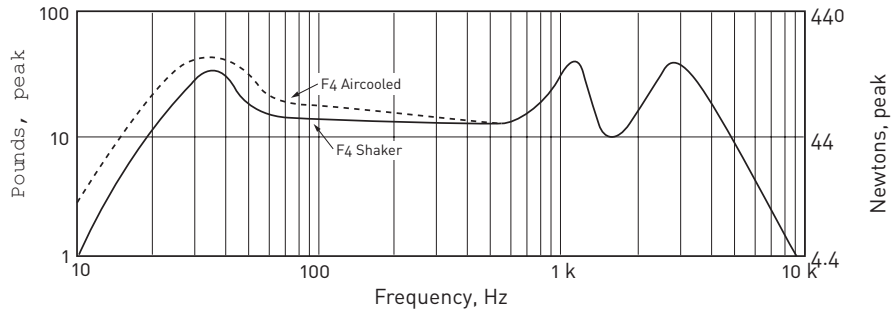
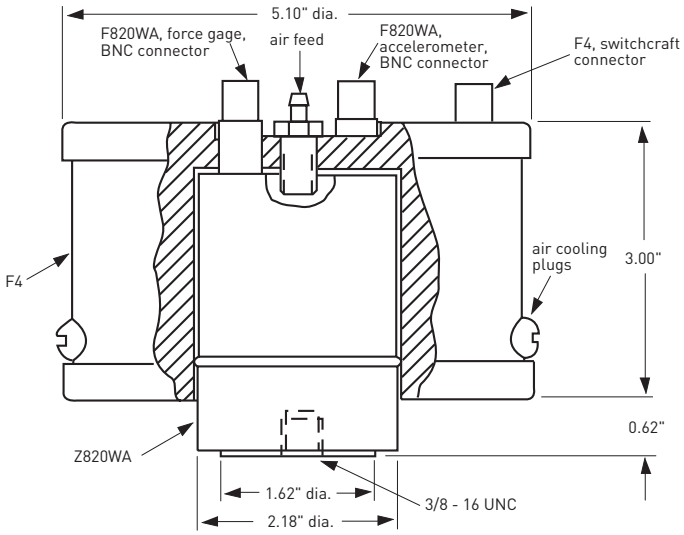
### Recommended system diagram




Typical blocked force output
(F4 shaker powered by WST7B3)




### Dimensions

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USA

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Fax: +1 (301) 330-8873
info@wilcoxon.com

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