



# PRODUCT DATASHEET

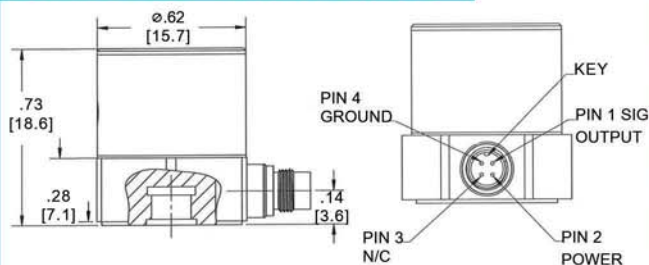
## 7705A EXTENDED LOW FREQUENCY (ELF™) SERIES

### APPLICATIONS:

- Static angular measurements
- Machinery monitoring
- Structural response
- End-of-line testing
- Automotive testing
- Aerospace testing
- Amusement rides
- Biomechanics
- Wind turbines
- Ride quality
- Impact testing



### SENSOR SNAPSHOT



Dual element accelerometer:  
Piezoelectric and DC MEMS

Dimensions: .89L X  $\phi.62$ W X .73H

Titanium alloy housing, 15 grams

Hermetically sealed, small size

### WHAT THIS SENSOR DOES FOR YOU:

Unique ELF™ technology combines a piezoelectric sensor (excellent high frequency response and low noise) and a variable capacitance MEMS accelerometer (true DC response) to create an extremely wide frequency response bandwidth from DC (0Hz) to 10 kHz. ELF™ eliminates the need to use two different sensors to cover a wide frequency range of interest. Slow speed events in the sub-1Hz range and gear mesh frequencies up to 10kHz can now be measured using the same sensor. Static measurements such as angle and tilt are now possible in the same sensor that measures high frequency events. This model is hermetically sealed for use in rugged environments.

### DEVICE FEATURES:

Measures static & dynamic signal on the same output pin

Broad frequency response from DC (0 Hz) to 10 kHz

Power requirements 5-28 VDC with 7-9mA

4-pin M4.5 x 0.35 radial connector

Mounting: 10-32 tapped hole

Lightweight and low noise

Available in three ranges

### LEARN MORE

818-700-7818  
[www.dytran.com](http://www.dytran.com)  
[info@dytran.com](mailto:info@dytran.com)

Since its founding, Dytran has built a solid 35+ year industry reputation for trusted, field proven experience in the design and manufacture of sensors for dynamic testing.





MODEL 7705A

# PRODUCT SPECIFICATIONS

## PHYSICAL

Weight, Max.  
Mounting  
Connector Type  
Housing Material

ENGLISH		SI	
0.53	oz	15	grams
10-32 Tapped Hole		10-32 Tapped Hole	
4-pin, M4.5X0.35		4-pin, M4.5X0.35	
Titanium		Titanium	

## PERFORMANCE

Sensitivity,  $\pm 10\%$  [1]  
Acceleration Range  
Frequency Response,  $\pm 10\%$   
Resonance Frequency  
Linearity [2]  
Transverse Sensitivity  
Output Noise, Broadband, Max.  
Phase shift mismatch, Max.  
Absolute phase shift, Max [3]  
Base Strain  
Bias Offset Max

ENGLISH		SI	
10	mV/g	1.0	mV/m/s <sup>2</sup>
$\pm 200$	Gpeak	$\pm 1962$	m/s <sup>2</sup> peak
0 to 10,000	Hz	0 to 10,000	Hz
>38	kHz	>38	kHz
1	% F.S.	1	% F.S.
<3	%	<3	%
0.008	Grms	0.0785	m/s <sup>2</sup> rms
+/-2	degrees	+/-2	degrees
+/-5	degrees	+/-5	degrees
0.0004	g/ $\mu\epsilon$	0.0039	m/s <sup>2</sup> / $\mu\epsilon$
0.2	g's	1.96	m/s <sup>2</sup>

## ENVIRONMENTAL

Maximum Mechanical Shock  
Bias Temperature Shift, Max  
Bias Calibration Error  
Operating Temperature  
Thermal Coefficient  
Seal

ENGLISH		SI	
5,000	Gpeak	49,050	m/s <sup>2</sup>
56	(ppm of span)/°F	101	(ppm of span)/°C
1.5	% of span	1.5	% of span
-60 to +250	°F	-51 to 121	°C
0.06	%/°F	0.12	%/°C
Hermetic		Hermetic	

## POWER

Compliance Voltage  
Current Range  
Output Bias Voltage, Typical  
Output Impedance, Nom.  
Power Supply Rejection Ratio

ENGLISH		SI	
+5 to +28	VDC	+5 to +28	VDC
5 to 10	mA DC	5 to 10	mA DC
2.45	VDC	2.45	VDC
1	$\Omega$	1	$\Omega$
>65	dB	>65	dB

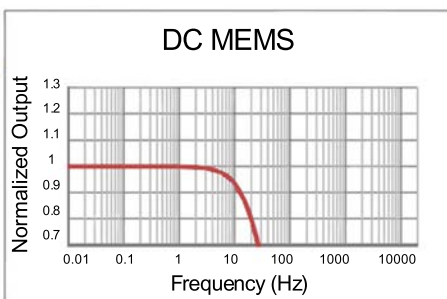
### Notes:

- [1] Measured at 100Hz, 1 Grms per ISA RP 37.2.
- [2] Measure using zero-based straight line method, % of F.S. or any lesser range.
- [3] 0 to 1000Hz
- [4] In the interest of constant product improvement, we reserve the right to change specifications without notice.

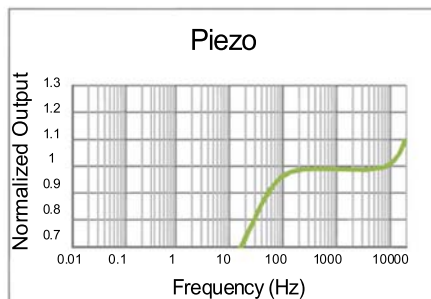
### This family also includes:

Model	Sensitivity (mV/g)	Range (Gpeak)	Maximum Shock (Gpeak)	Noise Broadband (grms)
7705A2	50	$\pm 40$	5,000	0.002
7705A3	100	$\pm 20$	5,000	0.0008

# MAXIMIZE YOUR BANDWIDTH



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