

Standard Actuator - Datasheet

Our **Standard Actuator** is the first generation of the HapForce, High Definition Haptic Actuators product line. We bring to the market a very innovative actuator capable of providing a wide variety of touch sensations. We use high quality components to provide the best in class high definition haptic effects for its size.

We see the **Standard Actuator** as the perfect fit for a large variety of devices, game-pads, joysticks, mice, screens and many more. With its inertial drive design, any device can provide vibrations with an easy integration, it is simply vibrating everywhere.

The vibrations could even make you believe you are touching leather or paper on the top of your smartphone screen. Haptics for years have been dull and loud, by using a wide bandwidth of frequencies from 10 Hz to 1000Hz we are able to make anyone feel the digital world in a whole new way.

Forget the basic "Buzz" of haptics and discover the possibilities of having any type of button you know and more, very immersive road sensations in games, socialize as never before with Hapmoji's... The Possibilities are endless.

Our **Unitouch platform** is the best way to create these sensations. Allow your designers to create their own haptic interactions using a simple SDK to call our HD Libraries or even let them create directly through our **Unitouch Engine**. We provide our engine and libraries either with our own Tactronik electronics or directly through a portable version of our Unitouch platform.

The **Standard Actuator** provides the best entry into the high definition haptic world. Get a hand on our Kits and try out your new high definition interactions, provide your customers a new way of touching any digital environments, refine your branding by implementing highly recognizable effects and make your own haptic signature.



Figure 1: **HFBA121238** - Standard Actuator

Recommended Applications	
• HM interfaces	• Gaming
• Smart wearable	• Industrial devices
• Hedonic devices	• Healthcare

Table 1: **HFBA121238** recommended applications

Parameter	Specification
Resonant frequency	65 Hz
Dimensions	11.5 × 12 × 37.7 mm ³
Typical acceleration	11.4 g-pp

Table 2: **HFBA121238** key features

Feature	Benefit
Haptic	<ul style="list-style-type: none"> • High frequency bandwidth, 98% of the haptic and most of the audio bandwidth • Low resonant frequency • High speed response time
Connections	<ul style="list-style-type: none"> • Standard pin header, pitch 0.05 in • Trough hole soldering
Design	<ul style="list-style-type: none"> • Miniature size • Easy attachment point

Table 3: Key benefits of **HFBA121238** - Standard Actuator

1 Technical description

Haptic characteristics

Parameter	Specification	Conditions
Resonant frequency	65 Hz	As specified in section 5, load 100 gr
Acceleration (AC)	8 g-pp	As specified in section 5, load 100 gr, at max. AC voltage
Acceleration (impulse)	11.4 g-pp	As specified in section 5, load 100 gr, at max. impulse voltage
Lag time	6 ms	Delay to reach 10% of impulse acceleration
Rise time	14 ms	Delay to reach 90% of impulse acceleration

Mechanical characteristics

Parameter	Specification	Conditions
Dimensions	11.5 × 12 × 37.7 mm ³	
Movement direction	\vec{X}	As specified in section 4
Total mass	8.7 gr	
Moving mass	4.4 gr	

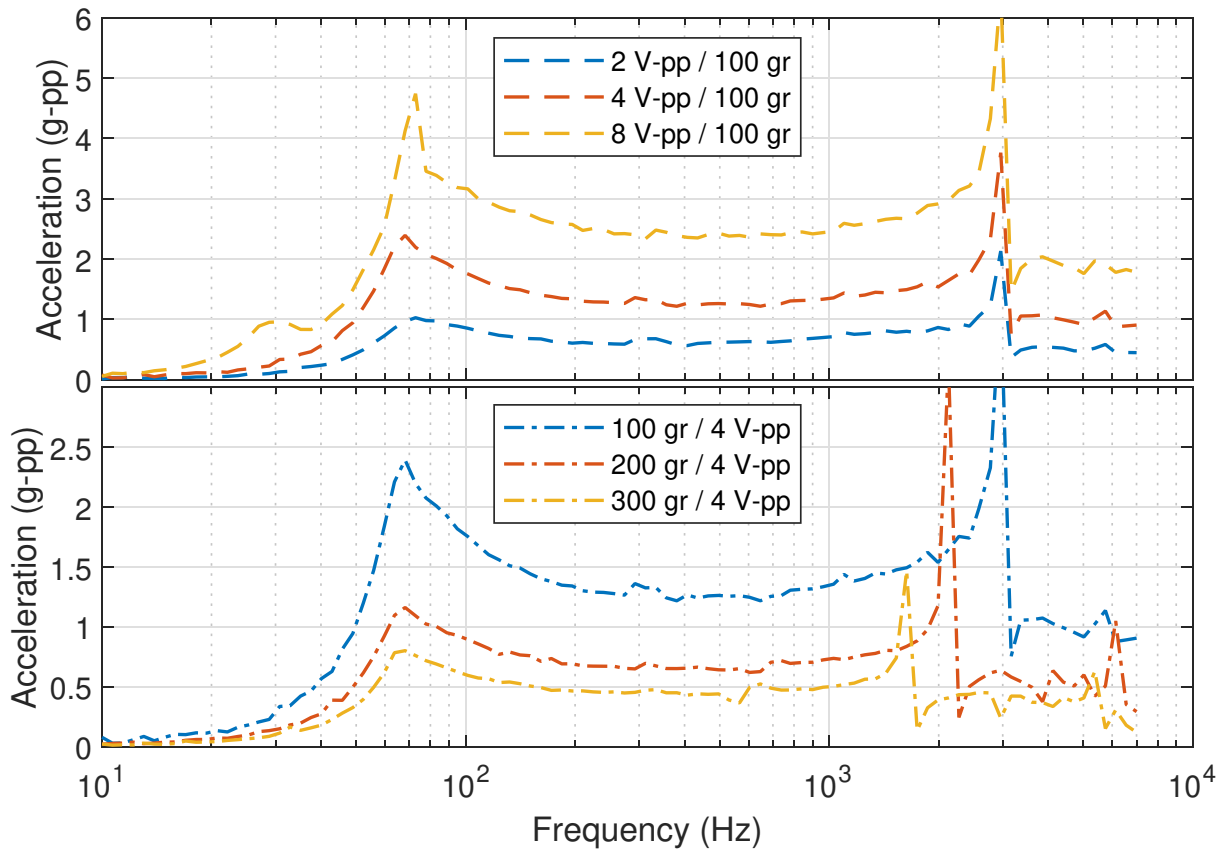
Electrical characteristics

Parameter	Specification	Conditions
Resistance	4.5 Ω	At 20 °C
Inductance	128 μH	
Rated voltage	1.41 V-rms	
Rated current	147.8 mA-rms	At rated voltage and resonant frequency
Min. voltage	0.25 V-Op	Threshold level for minimum perceptive signal
Max. DC voltage	2 V-Op	At 20 °C
Max. AC voltage	9 V-Op	At 20 °C
Max. impulse voltage	12 V-Op	At 20 °C

Environmental characteristics

Parameter	Specification	Conditions
Operating temp.	[−20 °C, 40 °C]	
Storage temp.	[−40 °C, 70 °C]	

2 Acceleration bandwidth measurement



3 Example of typical consumption data

Effect	Typical duration (ms)	Norm. mean current (mA/V) ¹	Norm. peak current (mA/V) ¹
Standard UI (e.g. click)	30	0.5 ²	250
Advanced UI (e.g. scroll)	30	10 ³	200
Standard gaming (e.g. shotgun)	300	1.5 ⁴	250
Advanced gaming (e.g. fire)	> 500	5 ⁵	250

¹ Current normalized according voltage input

² Single effect played every 5 s

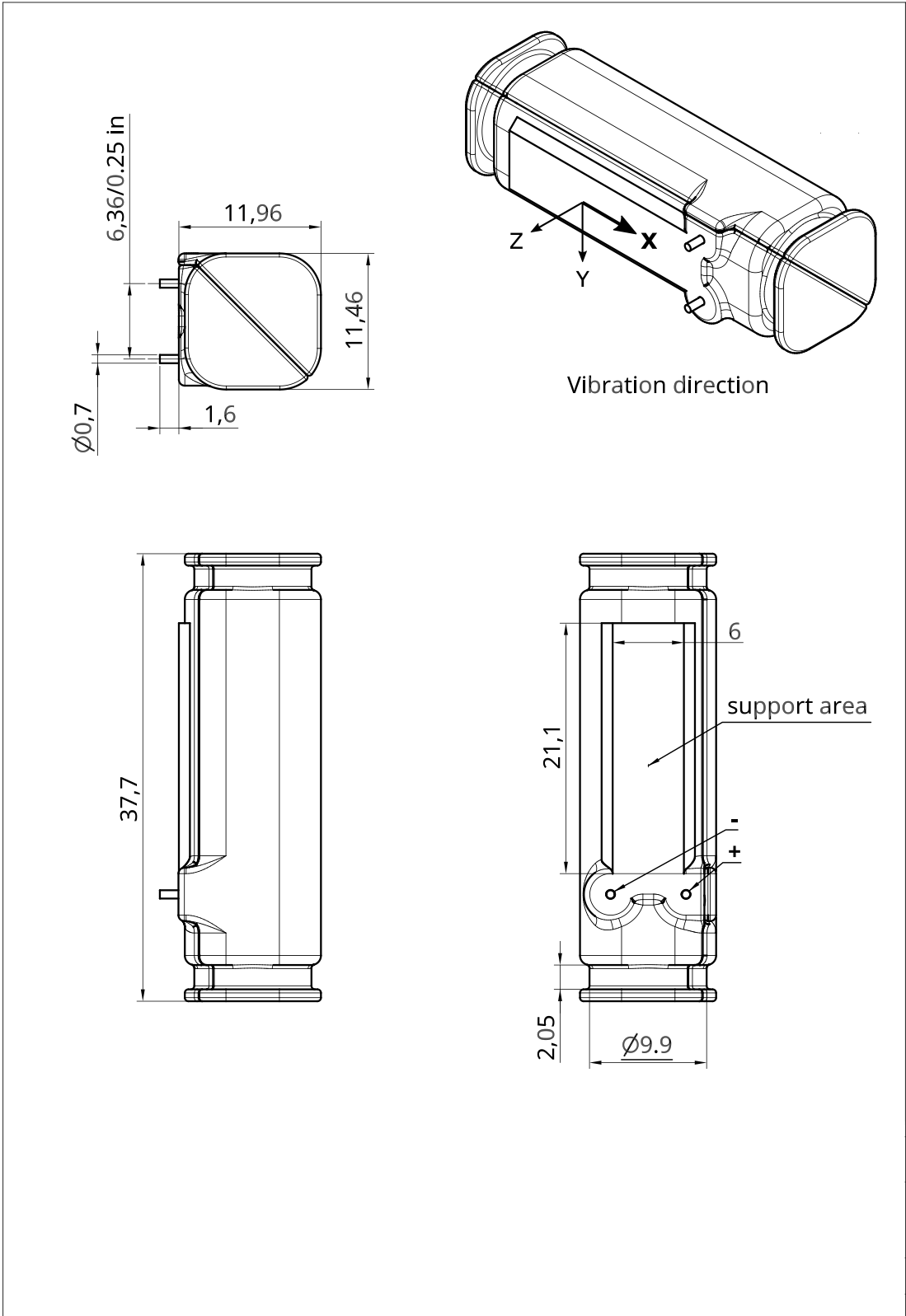
³ Multiple effect repetition (duration > 500 ms) every 5 s

⁴ Single effect played every 1 s

⁵ Effect played continuously

Mean current values are given for consumption calculation, wiring design and heating calculation. Maximum current values are given for electronic components choice.

4 Dimensional description



5 Measurement method description

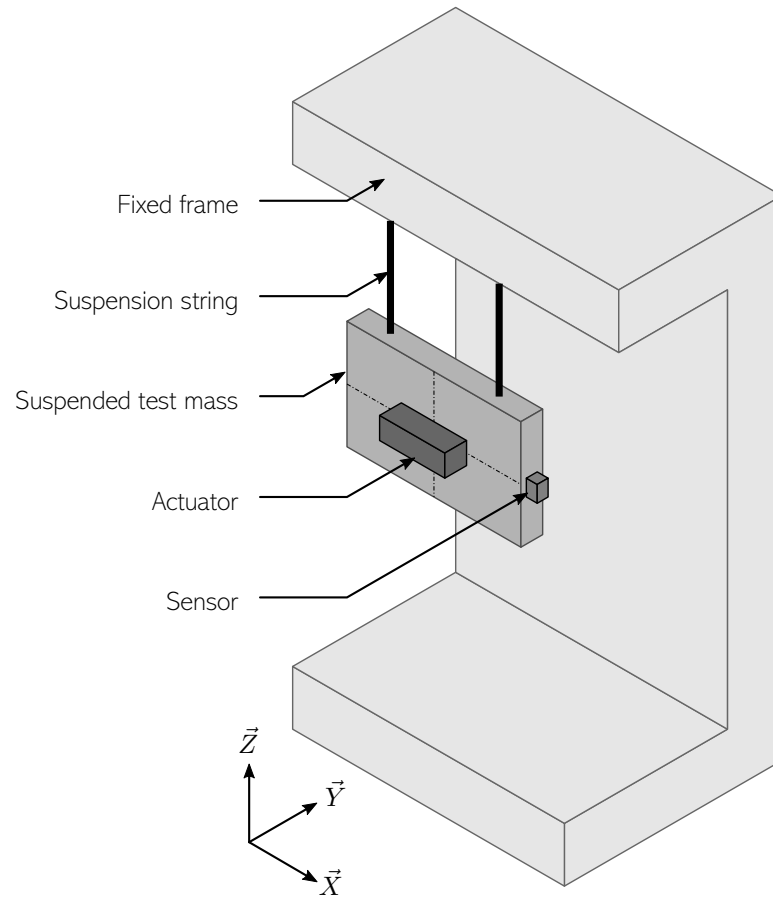


Figure 2: Actuator test bench description

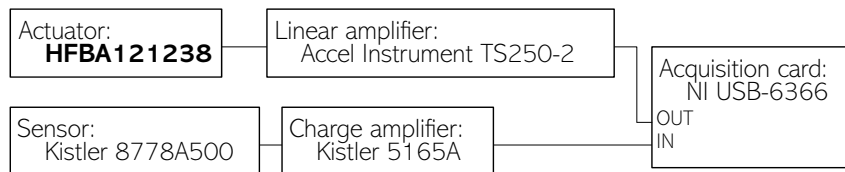


Figure 3: Actuator test bench architecture

6 Disclaimer

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