

# Quick start guide

## XUMU-5 ultrasonic motor



### Before you start:

Do **not** lubricate! Please see FAQ.

Do **not** insert ZIF cable while powered! Damage may ensue.

Do **not** touch white ceramic strip with your fingers! If touched, clean with IPA alcohol.

### Follow the steps below to get started:

#### Instructions (see schematic overview)

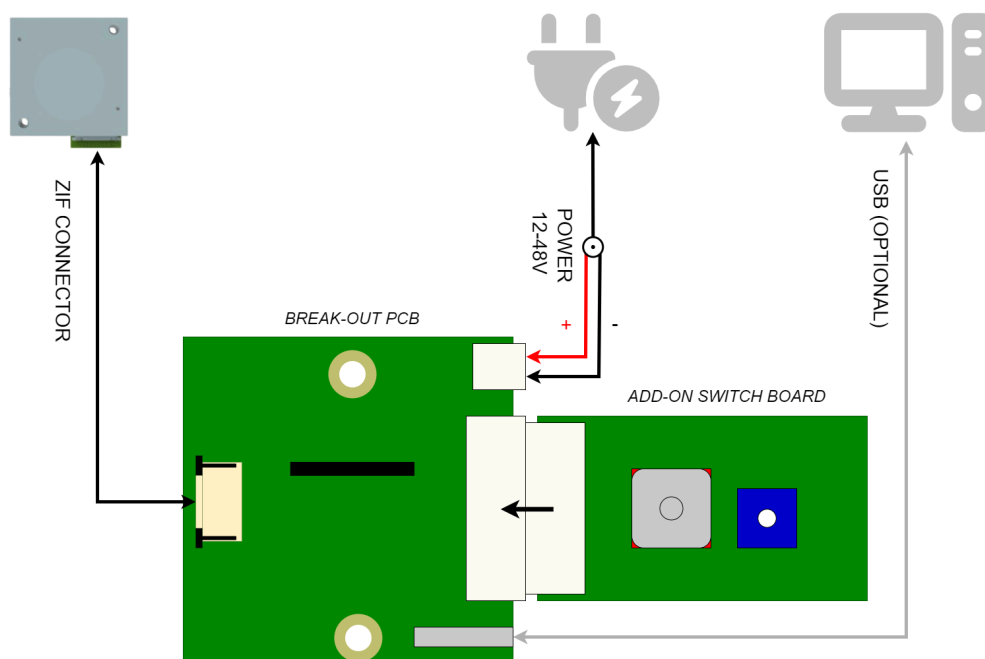
1. Connect ZIF cable to the XUMU motor and the break-out PCB.
2. Orientation of ZIF cable (see photos on page 2): At XUMU: blue side up. At PCB: blue side down.
3. Plug the add-on switch board into the break-out PCB.
4. Plug the 12V DC adapter into a power source.

Your XUMU is now ready to use.

5. ENBL pin turns the XUMU on and off. DIRE changes the direction of the ceramic tip.
6. The blue potentiometer controls speed. Clockwise to decrease, counter-clockwise to increase.

The XUMU's vibrating ceramic tip can now translate its vibration into linear or rotary motion. Hold the ceramic tip against any smooth surface (ideally ceramic). This should result in net displacement of the contacted object.

For a video and more information, please visit [xeryon.com/products/ultrasonic-motor](https://xeryon.com/products/ultrasonic-motor).



Schematic overview of connections

# Frequently asked questions

## *XLA micro actuator - open loop & hybrid*

**Q: What am I looking at?**

**A:** *You're looking at Xeryon's ultrasonic piezo motor 'XUMU'.*

**Q: How does it work?**

**A:** *The motor uses vibration to move a ceramic tip in an elliptical pattern at a very high frequency (80 kHz - 180 kHz). It generates very small but rapid movements, resulting in high-speed and precise motion when coupled to a (ceramic) surface, operating silently and durably.*

**Q: How does it differ from electromagnetic motors?**

**A:** *Xeryon's micro motors offer a unique combination of high speed, precision and durability in an ultra-compact design, overcoming the limitations of traditional electromagnetic motors where trade-offs have to be made (e.g. stroke length, size and precision). Xeryon's motors are direct-drive, energy-efficient and operate at low voltages. They also don't produce a magnetic field.*

**Q: How does it differ from other piezo motors like stick-slip or walking piezo?**

**A:** *Xeryon's ultrasonic piezo motors are much faster, a much (much!) longer lifetime, operate noiselessly, consume less power, and operate at a much lower voltage at the piezo element.*

**Q: What voltage should we use?**

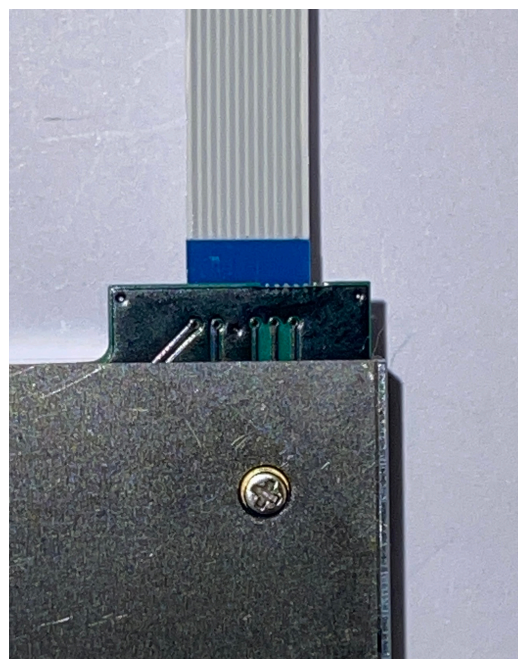
**A:** *Input: 12 - 48 VDC. For I/O, use 3.3V.*

**Q: How do I orient the ZIF cable?**

**A:** *Please see these pictures below.*



Break-out PCB



XUMU-5