

- **Vibration elimination is crucial when using highly sensitive scientific equipment**
- **Vibration assistance enables precise machining of advanced materials and alloys**
- **Using the correct combination of actuators, controllers and sensors will improve productivity, sensitivity and accuracy**
- **ORLIN Technologies Ltd is your UK supplier of CEDRAT Technologies piezo-electric actuators, controllers and sensors.**

Active Actuation

OCTOBER 2016

Piezo Actuators for Astronomical Instrumentation

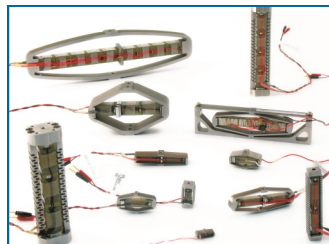
In astronomical instrumentation, the current trend is to build larger and more powerful telescopes. Such structures are able to gather more light and to view our universe in greater detail than ever before.

Bigger telescopes are typically more sensitive to the surrounding environment. The ongoing challenge is to eliminate any external disturbances to maximize image quality. Vibrations can be caused by environmental factors including gravity and wind, or less tangible influences like atmospheric wave front distortion. These external influences are minimized or eliminated by the inclusion of real-time monitoring systems,

controlling and adapting the shape and position of mirrors in a telescope.

THE ORLIN SOLUTION

ORLIN Technologies Ltd supplies solutions designed by

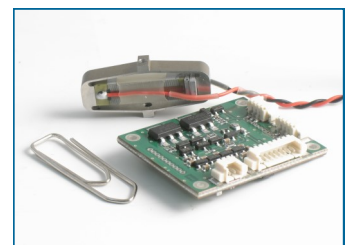


Piezoelectric Actuators

CEDRAT Technologies. Two main types of actuators can be used to solve the vibration problem: PPA (parallel prestressed actuators) and APA® (amplified piezo actuators). The main benefits of the ORLIN

solution are:

- Simple, compact design
- Optimised for dynamic applications
- Highest stroke per unit length in the industry (APA®)
- Precise actuation with nanometre resolution
- Wide frequency range from quasi-static to ultrasonic



Piezoelectric Actuators

Applications of Piezo Actuators

ELT - M5 FIELD STABILIZATION UNIT

The customer needed to generate a dynamic tip-tilt motion with stabilized piston motion on the M5 in the Extremely Large Telescope. The movement is supplied by three heavy duty APA500XXL piezo actuators with a 500µm stroke, 5nm resolution and a 100Hz bandwidth 20kN blocked force and a certified resistance to earthquakes.

FAST AMPLIFIED FRINGE MODULATOR

A UK university with a fast amplified fringe modulator requires stellar interferometric fringe acquisition rates to exceed 1kHz to avoid significant atmospheric related loss of contrast and crosstalk between components. Sufficient travel and high waveform stability in temporal phase modulation are essential for clean fringe visibility extraction.

This system uses a piezoelectric actuator APA40SM in a resonating stage to achieve an accurate and stable high amplitude motion. Nanometer accuracy in waveform optimization and in continuous waveform stability is demonstrated.

For more information, get in touch with ORLIN Technologies, the UK supplier of CEDRAT Technologies products.



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ORLIN Technologies Ltd has been providing solutions in precision motion control technology for a decade. We are industry specialists based in the UK and deliver high quality complete systems and components in motion control, micro and nano-positioning solutions and related products for science, industry and manufacturing.

ORLIN Technologies has teamed up with the leading international manufacturers in their respective fields to bring you the most innovative and reliable products on the market. Our expertise means that we are able to offer a full technical support service whilst providing the very best value for money to our customers. We have experienced engineers who can visit your site and discuss how ORLIN's products can increase your productivity and profitability.

Meet the ORLIN Team

At ORLIN we work hard and take a lot of pride in what we do. Our office features a hotdesk space and a workshop that we welcome our customers to call in to use. Our team of permanent staff is small but experienced and dedicated. This month we are pleased to introduce you to the boss, owner and head engineer, Martin.



Martin Bell

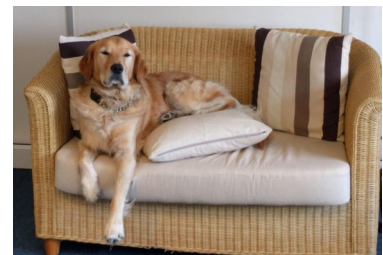
MARTIN BELL

Martin is the Managing Director of ORLIN Technologies. He began the business from home ten years ago, and has grown the company to fill our new offices, workshop and demonstration space in Bedford. Martin has decades of experience in lasers, optics, actuators and associated electronics. In his spare time he likes to tinker with electronics and always has a number of personal projects on the go!

MONTY THE OFFICE DOG

Monty the golden retriever loves to come to work with Martin! Before he found a home with Martin and his family, Monty was a rescue from an Irish dog pound. He really has fallen on his feet now.

The ORLIN office even has a sofa for doggy-naps!



Monty - working hard!

ORLIN Technologies Ltd is proud to supply products by:



SMART MOTOR DEVICES