

## Low Noise Catheter Placement Motion Control



IVUS imaging saves lives. Accurate catheter and stent placement is possible with low noise motion controllers from OTEC.



*“We so appreciate OTEC’s attention to detail. Our former consultant simply couldn’t get the noise out. Re-conceived by OTEC, our new controller was quiet from day one.”*

– Product Manager  
Advanced IVUS Systems

### Intra-vascular Ultrasound (IVUS)

Intra-vascular ultrasound provides high quality image resolution of in vivo biological systems. Miniature ultra-sonic sound transducers produce very high frequency pings which when rotated and pulled produce an internal image of the artery wall. Various rotational speeds and pull-back rates produce images with selectable resolution.

### Low Noise Catheter Motion Control

IVUS ultrasound transducers are extremely sensitive. Operating in the frequency range of 10 to 20 MHz, these transducers must both transmit high energy pulses and receive very low energy reflections. The pulse transmission and reflected energy reception process must take place rapidly while the whole transducer system is moving in two axes. Noise generation due to electronic controllers and pulse amplification systems must be strictly managed. The whole ‘trick’ to clean IVUS pulse reception lies in the demanding low noise detailed design of the motion controller and pre-amplification electronics system.

### Multi-axis Motion Control

An IVUS catheter must move in a safe and precise method, achieving high rotational velocity while simultaneously moving in a controlled linear fashion. Both axis of motion must operate at the same time while generating and radiating virtually no electrical noise whatsoever.

### Attention to Shielding Detail

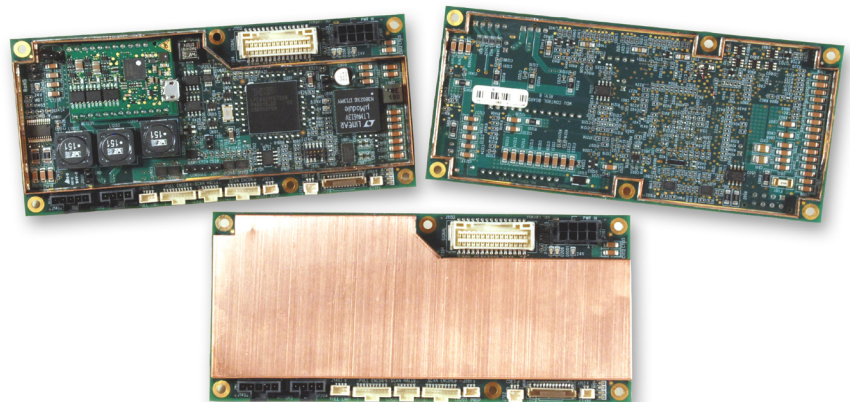
Quiet from day one, OTEC’s dual axis IVUS motion controller employs advanced shielding, grounding and isolation methods so as to achieve a low noise design from the start. Often designers approach noise and shielding as an afterthought. OTEC’s pro-active shielding and noise reduction design procedures resulted an unsurpassed low noise imaging system.

### Top Level Systems Considerations

OTEC’s years of experience creating low noise systems aids overall system design. Low noise is a mindset, and top level system considerations play a part in maintaining the low-noise characteristics of any controller. OTEC’s assistance in this area can really pay off.

### Orchid Technologies: Low Noise Motion Control

The development of custom electronic products for our OEM clients is OTEC’s entire business. The design of Low Noise Motion Controllers with rapid design cycles, demanding technical requirements, and unforgiving schedules sets us apart. Call Orchid Technologies today!



**ORCHID TECHNOLOGIES  
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**Custom Engineering From Concept to Production**

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