



# Case Study:

## OCT ISOLATOR

## Introduction

Today, optics technology is ubiquitous in the medical field. Its practical use has helped doctors perform visual examination, such as Optical Coherence Tomography (OCT), perform advanced diagnostics, as well as the deployment of therapeutic solutions. These optical applications specifically solve numerous issues including Imaging, digital X-rays, sensors, surgical instruments, medical instruments, illumination, spectroscopy, microscopy, endoscopy, and laser delivery.

Recent advancements in optics has created a new generation of medical imaging equipment: optical coherence (OCT) and photo-acoustic tomography. These imaging instruments are capable of providing two-dimensional (2-D) and three-dimensional (3-D) images of human body tissue and organs.

Optical fibers usage in the medical industry has provided advances and benefits for minimally invasive surgery, Automation and Robotics for remote surgery, laser delivery for imaging and treatment,

The advent of minimally invasive surgery (MIS) is to avoid cutting open patients and instead, perform small cuts and incisions through a variety of different surgical instruments, such as catheters and probes that are inserted through small openings, thus minimizing the postoperative pain and discomfort.

Optical fibers are thin, flexible, non-conductive, immune to electromagnetic interference, chemically inert, non-toxic, and of course, small in size. They can also be sterilized using standard medical sterilization techniques. But, the biggest advantage lies in the fact that they are thin and flexible so they can be introduced into the body to both remotely sense, image and treat.



## Optical Isolator in Action

ACP was asked by a specialty medical device manufacturer to design and build a unique, custom Optical Isolator which was to be used in a minimally invasive surgical device. The customers' requirements called for a solution with a custom non-standard wavelength, power ratings and requirements that were not currently available within our product offering, a polar dependent loss lower than any product we offered, all of which had to fit into a unique footprint as the client had limited space available.



After multiple iterations, our team created a custom solution which met all of the clients' requirements within the timeframe required to allow the client to meet their deadlines for 510k approval. As the client brought the product to market ACP worked with them to create a vendor managed inventory program to support unknown demand in the marketplace all while committing to a 5-year, year-on-year cost down program.

## The outcome

Our capability to provide custom products with specific requirements gives a unique and unsurpassed level of confidence for our clients in the medical device segment. Our team's history and understanding of what drives innovation and success in this vertical has allowed our internal team to grow significantly as our client partnerships evolve. It is a uniquely rewarding feeling knowing that ACP is taking part in global technology advancements which help improve health and wellness for the world's population.

## Contact our team to have your challenge solved today:

Every acp solution is backed by 25 years of unparalleled success in providing photonic solutions for global OEMs coupled with our uncompromising pursuit of excellence.

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