

# Fiber Optic Assemblies for Space

Focused on Space-Based Laser Communications

## Overview

Impact Electronic Solutions (Impact ES) has been involved in supporting space-based fiber optics since 2003. Andy Devine, the President of Impact ES—Ventura, spent two years in the 1990s qualifying an SM fiber optic connector that could withstand launch and over 10 years of thermal cycling in space. Impact ES—Ventura’s Qualified FC (QFC) connector has been tested and proven to survive the rigors of launch and space, thus reducing associated risks. We are recognized as the world’s leading supplier of fiber endcaps for single mode (SM) and polarization-maintaining (PM) fibers in ferrules and connectors, and manufacturing vacuum feedthroughs for testing space systems on Earth.

## Experience

- Secret Space Programs
- Currently building 1,000s of assemblies for space
- Space Shuttle LiDAR, LLCD on LADEE, Orion, Osiris Rex
- Building assemblies to NASA Standard 8739.5 and 8739.6
- Two space-based laser communication systems have flown
- Third space-based laser communication system in progress

## Fiber End-Caps

- Up to 400µm diameter end-caps
- Compatible with SM and PM fibers
- Increased reliability by reducing power density
- <math>\leq 1\mu\text{m}</math> fiber core eccentricity on 125µm clad fibers
- Can withstand 25,000 Watts/mm<sup>2</sup> at the end face

## QFC / ESCC 3420 Connectors

	Parameters
<b>Fibers</b>	Single-Mode, PM, Multimode
<b>Boots</b>	Low Outgassing
<b>Cabling</b>	ETFE, PEEK, PVDF
<b>Wrench Flats</b>	Torque to 1.0 Nm (9lbf-in)
<b>Vibration</b>	46.3Grms
<b>Shock</b>	500Gs

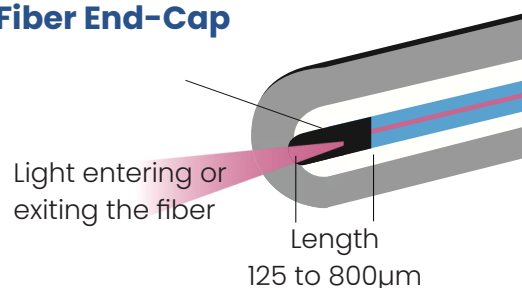
## 3420 Space Connector

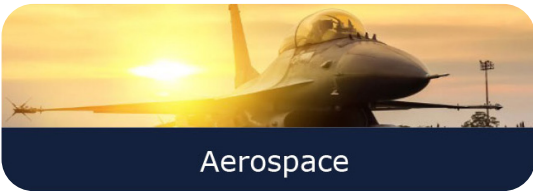


## QFC Connector

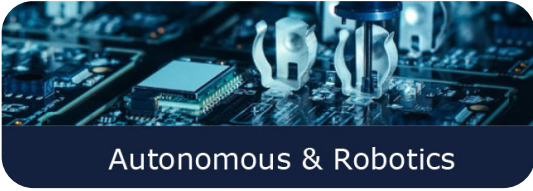


## Fiber End-Cap





Aerospace



Autonomous & Robotics



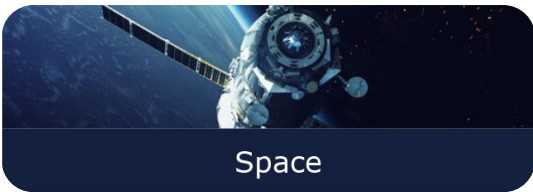
Commercial & Industrial



Medical & Life Sciences



Military & Defense



Space

## Industries We Serve

At Impact Electronic Solutions, we offer cutting-edge prototype and full-turnkey production services, providing unparalleled innovation and seamless solutions to meet your needs.

Our expertise spans highly regulated and mission-critical environments. We deliver complex electronic, fiber optic, and electromechanical products with exceptional quality and reliability. From product development to full-scale manufacturing, we prioritize customer-centric solutions and support groundbreaking innovations.

With extensive experience, we ensure success across diverse industries by consistently meeting rigorous standards and exceeding expectations.

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## About Us

We are a dynamic team dedicated to delivering innovative electronic design and manufacturing services that consistently outperform industry standards.

Our headquarters are in the Pacific Northwest, and the Impact ES network spans five key locations across the U.S.:

- Clearwater, Florida
- Cranston, Rhode Island
- Grants Pass, Oregon
- Vancouver, Washington
- Ventura, California

Our facilities have been recognized for excellence by numerous corporations, organizations, and publications, showcasing our commitment to quality, precision, and customer satisfaction nationwide.

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## Fiber Optic Cables and Assemblies Certifications



NASA 8739.5

**We design and build products that matter.**

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### Contact Us

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