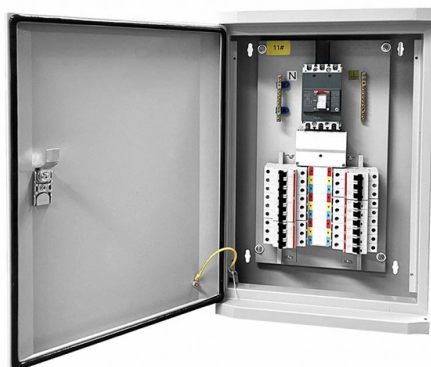


What is the code name for fiber optic sensing



Overview

Fiber optic sensing utilizes the fiber as the sensor to create thousands of continuous sensing points along the fiber.

Key Takeaways

Fiber optic sensors are generally referred to by their type or configuration rather than a single code name, such as intrinsic or extrinsic sensors, or by specific architectures like fiber Bragg gratings (FBG) or interferometric sensors.

Fiber optic sensors (FOS) are devices that use optical fibers to detect physical, chemical, or biological parameters. They can be classified based on how the fiber is used:

- Intrinsic sensors: The optical fiber itself acts as the sensing element, detecting changes in light properties such as intensity, phase, polarization, wavelength, or transit time caused by the measured quantity (e.g., strain, temperature, pressure) .
 - Extrinsic sensors: The fiber serves only as a signal guide, with the sensing occurring outside the fiber, often using interferometric or Fabry-Perot configurations .
- Common Architectures and Types

Fiber optic sensors are often identified by their architecture or sensing mechanism, which can serve as a practical "code name" in technical contexts:



- Fiber Bragg Grating (FBG): Uses periodic variations in the fiber core to reflect specific wavelengths, commonly for strain and temperature sensing .
 - Interferometric sensors: Include Mach-Zehnder, Michelson, and Sagnac interferometers, which detect phase changes in light .
 - Scattering-based sensors: Utilize Rayleigh, Raman, or Brillouin scattering for distributed sensing over long distances .
 - Hydrophones and gyroscopes: Specialized fiber optic sensors for seismic, sonar, or navigation applications .
- Industrial and Commercial References

In commercial and industrial settings, fiber optic sensors are often referred to by series or model names provided by manufacturers, such as the FU Series from Keyence, which includes thru-beam, reflective, and retro-reflective heads . These designations act as practical identifiers for procurement and integration but are not universal code names.

Summary

There is no single universal "code name" for fiber optic sensors. Instead, they are typically identified by:

- Type: intrinsic or extrinsic
- Architecture: FBG, interferometric, scattering-based
- Manufacturer series or model: e.g., FU Series for industrial sensors These identifiers serve as functional code names in technical, industrial, and research contexts, allowing precise communication about the sensor's capabilities and configuration .

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