

How to cut the optical fiber in an optical fiber sensor



Overview

2 If the fiber unit is a free cut type, cut any excess length of the fiber. (1) Insert the fiber into the hole in the cutter.

Key Takeaways

Use a fiber cleaver or fiber cutter to achieve a clean, precise cut that minimizes signal loss and ensures proper sensor performance. Tools Needed

- Fiber Cleaver: A precision tool that scores and fractures the fiber to create a smooth, near-perfect 90° end face, essential for low-loss splicing or connector termination .
 - Fiber Cutter: For free-cut fiber units, a dedicated cutter like the KEYENCE OP-87098 can be used to cut the fiber in a single motion .
 - Fiber Stripper: To remove the protective coating before cleaving, exposing the bare glass fiber .
 - Cleaning Supplies: Alcohol wipes or lint-free cloths to clean the fiber before and after cutting.
- Step-by-Step Procedure
- Strip the Fiber: Remove 3–4 cm of the fiber coating using a fiber stripper to expose the glass core .
 - Clean the Fiber: Wipe the bare fiber with alcohol to remove debris and contaminants .

- **Position the Fiber:** Place the fiber flush against the cleaver's alignment groove or insert it into the fiber cutter's designated hole, following the manufacturer's instructions .

- **Cut the Fiber:**

- For a fiber cleaver, the tool scores the fiber with a diamond or tungsten carbide blade, then applies tension to fracture the fiber cleanly along the score line, producing a cleave angle typically less than 0.5° .

- For a fiber cutter, bring down the blade in a single, swift motion without stopping halfway, and avoid using the same hole twice .

- **Inspect the Cut:** Ensure the end face is smooth and perpendicular (or at the required angle for APC/UPC connectors) to prevent signal loss or splice failure .

Tips and Precautions

- Always handle bare fibers carefully to avoid injury; glass shards can be sharp.

- Avoid rough or angled cuts, as even a 1° cleave error can increase splice loss by 0.5 dB .

- Clean the fiber thoroughly before splicing or connecting to maintain optimal sensor performance.

- Use proper disposal methods for fiber scraps to prevent accidents. By following these steps and using the correct tools, you can cut optical fibers safely and precisely, ensuring reliable operation of optical fiber sensors and minimizing signal degradation .

Article Content

2 connecting the fiber unit, Connecting the fiber unit -6, Connecting ...

2 If the fiber unit is a free cut type, cut any excess length of the fiber. (1) Insert the fiber into the hole in the cutter. (2) Bring down the

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Cutting optical fiber without fiber cleaver : r/Optics

Dissolve the cladding, place the exposed fiber onto a rubberised or soft mat, apply the gentlest pressure with a razor (just a light tap),

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However, cutting fiber optic cables requires precision and the right tools to ensure the integrity of the optical fibers and maintain

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$\Delta \phi$ Phase change of a light wave through an optical fiber of original length L that has been stretched by a length ΔL versus relative

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Fundamentally, a fiber-optic sensor works by modulating one or more properties of a propagating light wave, including intensity,

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