

Article Overview

A fiber optic cable grounding lead is used to bond metallic components of conductive or armored fiber optic cables to the building or system grounding network to ensure safety and compliance with electrical codes.

Purpose of Grounding Fiber Optic Cables

Fiber optic cables that contain metallic components, such as strength members, interlocking armor, or metallic shields, can conduct stray currents or be affected by lightning or electrical faults. Grounding these components ensures that any unintended electrical energy is safely discharged, protecting personnel, equipment, and the optical network itself. Dielectric fiber cables without metallic elements do not require grounding.

NEC and Industry Standards

- o NEC 770.100 requires that conductive fiber optic cables be grounded through a bonding or grounding electrode conductor when entering or terminating in buildings.
- o The bonding conductor should ideally be 6 AWG copper, although the NEC allows a minimum of 14 AWG.
- o The conductor should run as straight and short as practicable to the building's grounding electrode, typically less than 20 feet.
- o Grounding can be connected to the Telecommunications Main Grounding Busbar (TMGB) or Central Office Ground Busbar (COG Busbar).
- o Industry standards such as ANSI/TIA/EIA-J-STD-607 provide additional guidance for proper bonding and grounding of telecommunications systems.

Practical Installation

- o Expose the metallic component: For armored cables, carefully remove the outer jacket or heat shrink to access the armor without damaging the fiber.
- o Attach bonding clamp: Insert the bottom plate of the clamp under the armor and secure the top plate with provided hardware, ensuring a firm connection.
- o Connect to grounding point: Bond the cable to the TMGB, TGB, or an independent grounding electrode, maintaining continuity and minimizing conductor length.
- o For locating purposes: When using a cable locator, ground the metallic shield or stress member at one end to an independent ground, separate from power grounds, to ensure accurate signal tracing.

Special Considerations

- o Armored cables: Interlocking or corrugated armor must be bonded to earth to safely discharge stray currents.



Fiber optic cable grounding lead wire

- o Dielectric-armored cables: These do not require grounding, simplifying installation .
- o OPGW cables: Optical Ground Wire cables used in transmission lines require specialized hardware such as download clamps and earthing clamps to maintain both mechanical and electrical integrity . Proper grounding of fiber optic cables is essential for network reliability, safety, and compliance with electrical codes, particularly in commercial buildings or utility installations where metallic components are present.

Download clamps are used to guide optical ground wire (OPGW) from the top of the structure to the splice box. GL FIBER"s

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Understanding how to bond and ground a fiber-optic system with armored cable can be

AFL download clamps are used to guide optical ground wire (OPGW) from the top of the structure to the splice box. AFL"s download

An optical fiber, or optical fibre, is a flexible glass or plastic fiber that can transmit light from one end to

HDWR-GRND-KIT Grounding Kit for Hardware Includes two wires, one sheath

Bonding and grounding of armored fiber-optic cable are simple steps in the installation process that are often

Fiber optic lead assemblies use optical fibres to transmit data as light signals, offering superior performance over traditional copper

An optical ground wire (also known as an OPGW or, in the IEEE standard, an optical fiber composite overhead ground wire) is a type

An OPGW (Optical Ground Wire) Cable is a robust solution for integrating fiber optic communication within overhead power

From the September 2016 OSP Expert Column Our September 2016 OSP Expert column on fiber optic cable bonding and

CommScope designs and manufactures a variety of Fiber Cable Clamps and Grounding Kits

OPGW - AFL AlumaCore Optical Ground Wire is preferred for its central aluminum pipe and color-coded



Fiber optic cable grounding lead wire

Conductive fiber optic cable per NEC 770.100 must be grounded through a bonding or grounding electrode conductor. NEC 770.100

In armored cable, the armor can build up a static charge of thousands of volts without being connected to anything because of its

Learn how to properly ground fiber optic cable installations, including when grounding is required, metal components

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