

OPPC Optical Cable Principle

Article Overview

OPPC cables integrate optical fibers within a live phase conductor, enabling simultaneous electrical power transmission and high-speed data communication.

Principle of Operation

The OPPC cable functions by embedding optical fiber units directly into one of the phase conductors of an overhead power line. Unlike Optical Ground Wire (OPGW), which replaces the ground wire, OPPC replaces a live phase conductor, meaning it carries continuous electrical current while also transmitting optical signals for communication and data purposes. This dual functionality allows power utilities to combine energy delivery and telecommunication infrastructure in a single cable.

Construction

The typical OPPC cable consists of:

- Optical fiber units housed in stainless steel tubes or protective buffer tubes, which provide mechanical protection and stability for the fibers.
- Steel core for mechanical strength, ensuring the cable can withstand tension and environmental stresses.
- Aluminum or aluminum alloy outer layers, helically stranded around the core, which replicate the mechanical and electrical characteristics of a conventional phase conductor.
- The cable may contain up to 144 optical fiber cores, depending on design requirements. This construction ensures that the cable can safely carry high-voltage...

Article Content

Sep 28, 2025

Discussion on The Application of Overhead Power Communication Optical Cable

include optical fiber composite g round wire (OPGW), non-metallic self-supporting optical cable (ADSS) and optical fiber composite phase wire (OPPC), different types of optical cables

Apr 30, 2026

Optical Fiber Composition Phase Conductor

Description: Optical Fiber Composition Phase Conductor (OPPC) is the optical cable that compounds the fiber in the phase conductor.

Dec 25, 2025

P1595/D6, Jun 2021

Scope: This standard covers the performance, test requirements, procedures, and acceptance criteria for a transmission line phase conductor with optical fibers commonly known as optical phase

Mar 07, 2026

Introduction Construction Outdoor OPPC Cable Optical Phase

Telecommunications: OPPC cables facilitate telecommunications for medium and high voltage power lines, enabling the construction of distribution automation stations in urban and rural

Apr 17, 2026

What is OPPC Cable? Optical Phase Conductor

OPPC stands for Optical Phase Conductor, also known as Optical Fiber Composite Phase Wire. It is an advanced type of overhead power cable that combines the functions of a traditional

Nov 05, 2025

What is OPPC Cable? Optical Phase Conductor

OPPC cable (Optical Phase Conductor) It is a type of optical cable specialized for electrical energy. This aerial cable combines fiber optic units within phase conductors, thus having a

Feb 12, 2026

OPPC (Optical Phase Conductor)

Introduction OPPC (Optical Phase Conductors) are the combination of a phase conductor commonly used for energy transport with an optical core for data transmission. OPPC is typically used in

Oct 21, 2025

Getting to Know OPPC Fiber Optic Cable

What is OPPC Cable? An optical phase Conductor (OPPC) cable is a fiber optic cable with dual functions of power transmission line and communication. OPPC Cable is designed for

Jul 22, 2026

Optical Fiber Composite Phase Wire (OPPC)

OPPC is a new type of special electrical cable that makes up the unit of fiber in the phase with the function of phase and communication. It is mainly applied in low voltage classes 110kV, urban power

Mar 24, 2026

InPhase OPPC Cable | Incab America LLC

InPhase OPPC (Optical Phase Conductor) is an optimal solution to provide redundancy in harsh conditions, such as long cable spans, crossings of cable spans, power lines with previously installed

Apr 22, 2026

Application of Optical Phase Conductor in Smart Grid Construction

Optical Phase Conductor is a new type of optical cable in power communication. Compared with OPGW and ADSS, OPPC has the advantages of perfect integration of power transmission and optical signal

Sep 20, 2025

HOHAM CABLE---OPPC,Optical Phase Conductor

OPPC OPPC--OPPC,Optical Phase Conductor Application: OPPC combines the function of overhead phase conductor and fiber cable. The aluminum (or alloy) wires guarantee its good electrical

Sep 09, 2025

Structure optimization for downlead cable of 110-kV insulated optical ...

Unlike OPPC, the second-layer aluminum-stranded conductor of IOPPC incorporates an optical unit in insulating material. When separating the optical cable of the IOPPC (comprising the

Jun 04, 2026

Application of Optical Phase Conductor in Smart Grid Construction

This paper first analyzes the characteristics of OPPC, and then elaborates its application in smart grid. Combined with transmission line transformation, Shandong electric power company of State Grid

May 09, 2026

oppc cable for sale, Optical Phase Conductor (OPPC)

Get oppc cable for sale, welcom to contact Optical Phase Conductor(OPPC) manufacturer from China.

Jan 26, 2026

RIBE® Electrical Fittings – OPTOFIT® OPGW / OPPC Accessories

Our RIBE-OPTOFIT® accessories offer the ideal solution for connecting fiber optic overhead cables and terminating the optical signal, and perfectly complement proven RIBE-OPTOFIT® fittings.

Jun 04, 2026

Optical Phase Conductor OPPC | AFL EMEA

Unlike OPGW, where the cable is not carrying continuous current, OPPC is energized along high voltage power lines. Therefore it requires specially adapted

Mar 18, 2026

Optical Phase Conductor (OPPC)

OPPC (Optical Phase Conductor) integrates power delivery and high-bandwidth optical communication in a single robust conductor. Ideal for 110 kV and below distribution grids, it reduces installation costs

Oct 21, 2025

HOHAM CABLE---OPPC,Optical Phase Conductor

Application: OPPC combines the function of overhead phase conductor and fiber cable. The aluminum (or alloy) wires guarantee its good electrical performance while aluminum clad steel wires and optical

Jul 02, 2026

IEC 60794-4-30

Optical fibre cables – Part 4-30: Aerial optical cables along electrical power lines – Family specification for optical phase conductor (OPPC) optical cables

Jun 20, 2026

The Difference Between OPGW, OPPC and ADSS Optical Cable

Usually, Power optical cables can be divided into three types: Powerline combo, tower and powerline. Power line composite usually refers to the composite optical fiber unit in the traditional

Dec 22, 2025

Optical Phase Conductor Overview

Optical Phase Conductor (OPPC) serves as an alternative to Optical Ground Wire (OPGW) in telecommunications when no ground wire exists, designed to mimic the mechanical and electrical

Aug 08, 2025

What Is OPPC Cable | Hunan Jiahome

What Is OPPC Cable? Optical Phase Conductor (OPPC) cable is a specialized type of power line cable that integrates optical fibers into a traditional phase conductor (live wire) used in electrical

Jun 21, 2026

What is OPPC Cable? Optical Phase Conductor

OPPC (Optical Phase Conductor) is a specialized aerial power cable that integrates fiber optic units directly into the phase conductors of overhead transmission and distribution lines. It

Apr 12, 2026

Optical Fiber Composite Phase Wire (OPPC) in the Real World

Optical Fiber Composite Phase Wire (OPPC) is transforming how utilities and telecom providers deliver power and data. Combining strength, flexibility, and high-capacity data

Contact Us

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