

# Indoor Flat Dual-ended Photoelectric Composite Cable Datasheet

Building an Efficient Fiber Infrastructure.

## Overview

A photoelectric composite cable is a composite cable that integrates fibers and copper wires to provide both data transmission and remote power supply functions for terminals.

### Features & Benefits

- Photoelectric composite cable, providing data transmission and remote power supply
- Prefabricated XC/UPC photoelectric composite small and micro connectors at both ends
- Small outer diameter, lightweight, and small footprint
- Superior bending performance and flexibility, facilitating deployment

### General Specifications

|   |   |
|---|---|
| <b>Photoelectric composite cable type</b> | Branch cable  |
| <b>Installation environment</b>           | Indoor  |
| <b>Packaging</b>                          | Independent packaging   |
| <b>Port type</b>                          | Prefabricated XC/UPC photoelectric composite small and micro connectors at both ends  |
| <b>Working temperature</b>                | -10°C to +60°C  |
| <b>Working humidity</b>                   | 0% to 95% (40°C)  |
| <b>Minimum installation temperature</b>   | -10°C   |
| <b>Transportation temperature</b>         | -15°C to +60°C  |
| <b>Rated operating voltage (DC)</b>       | 48-56 V   |
| <b>Rated operating current (DC)</b>       | 0.25 A  |
| <b>Maximum power</b>                      | <p>When the length of the feeder photoelectric composite cable is 20 m, the maximum length of the branch photoelectric composite cable is 80 m.</p> <p>When the length of the feeder photoelectric composite cable is 2 m, the maximum length of the branch photoelectric composite cable is 150 m.</p> |
| <b>Flame retardant rating</b>             | UL94-V0   |

# Structure

## Indoor dual-ended prefabricated photoelectric composite cable assembly



### NOTICE

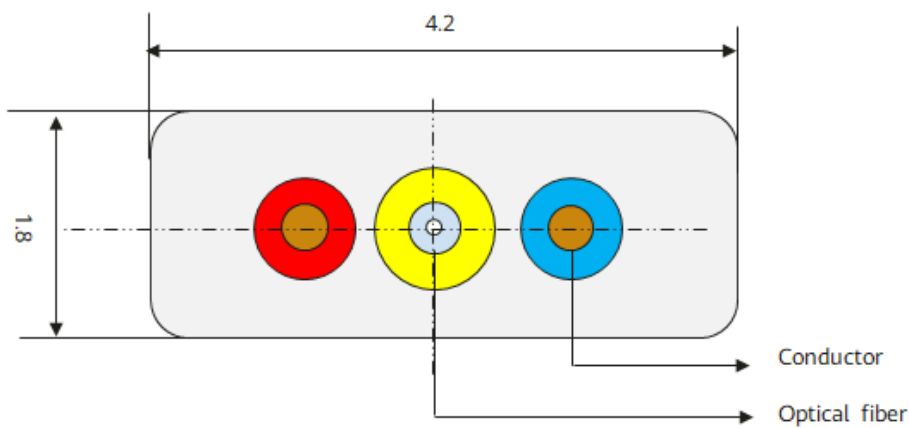
1. Before inserting a routed optical cable to a fiber socket unit, remove the plastic film from the large white dustproof cap.



2. Remove the large white dustproof cap.

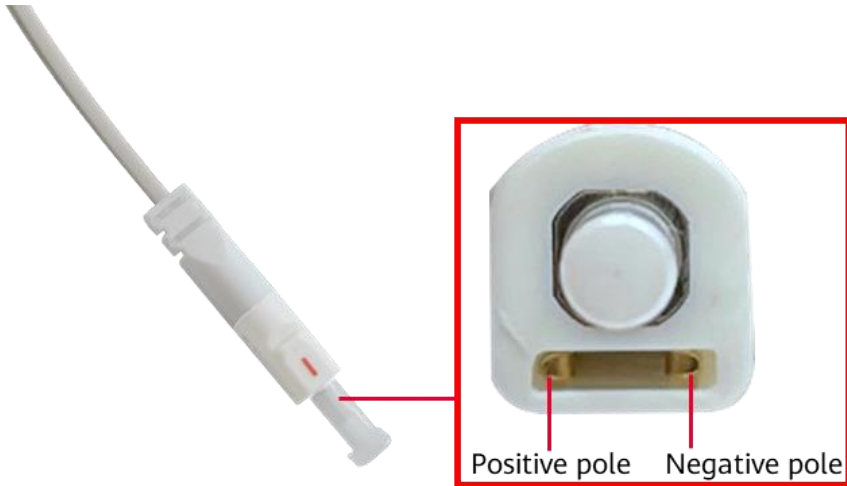


## Cross section of a photoelectric composite cable



## Pin assignment

Pins and connectors made by insert injection molding



## Specifications

### Dimensions and structure of a photoelectric composite cable

|  |                    |   |
|--|--------------------|---|
| <b>Fiber</b>   | <b>Fiber cores</b> | 1                                       |
|  | <b>Fiber type</b>  | G.657A2                                 |
| <b>Tight tube</b>                                      | <b>Diameter</b>    | 0.6 mm                                  |
|  | <b>Material</b>    | LSZH                                    |
| <b>Conductor</b>                                       | <b>Material</b>    | Copper                                  |
|  | <b>Diameter</b>    | 26 AWG                                  |
|  | <b>Quantity</b>    | 2                                       |
| <b>Insulation jacket</b>                               | <b>Material</b>    | PVC                                     |
|  | <b>Color</b>       | Positive pole: red; Negative pole: blue |
|  | <b>Thickness</b>   | 0.3 mm                                  |
| <b>Photoelectric composite cable sheath</b>            | <b>Material</b>    | PVC                                     |
|  | <b>Color</b>       | Ivory white                             |
| <b>Dimensions of the photoelectric composite cable</b> |                    | 1.8 mm x 4.2 mm                         |
| <b>Weight of the photoelectric composite cable</b>     |                    | 12 kg/km                                |
| <b>Length of the photoelectric composite cable</b>     |                    | 10/15/20/30/40/50//60/80 m              |
| <b>Minimum bending radius</b>                          |                    | Static: 18 mm<br>Dynamic: 36 mm         |

### Optical and mechanical specifications of connectors

|                               |  |
|-------------------------------|--|
| <b>Connector type</b>         | XC/UPC photoelectric composite connector |
| <b>Dimensions (H x W x D)</b> | 6.5 mm x 6 mm x 27 mm                    |

|                        |            |
|------------------------|------------|
| <b>Insertion loss</b>  | ≤ 0.50 dB  |
| <b>Return loss</b>     | ≥ 50 dB    |
| <b>Tension</b>         | 70 N       |
| <b>Insertion times</b> | ≥ 50 times |

Note: The insertion loss in the table refers to the insertion loss of the connector. The insertion loss of the product includes the insertion losses of the connector and optical cable. Insertion loss of the product = Insertion loss (connector) + Insertion loss (1 km optical cable IL)/1000 x L (optical cable length).

## Electrical specifications of cables

|                                     |  |
|-------------------------------------|--|
| <b>Insulation resistance</b>        | ≥ 500 MΩ; tested using 500 V DC at normal temperature for 1 minute |
| <b>Dielectric withstand voltage</b> | Leakage current less than 0.5 mA at 1000 V for 1 minute            |
| <b>Connectivity test</b>            | No short circuit or open circuit at normal temperature             |
| <b>On resistance</b>                | $R_{test} \leq (R_{cable}) + 2 \times 50 \text{ M}\Omega$          |

Note:  $R_{cable} = 140 \Omega / \text{km} \times L$  (km)

## Mechanical specifications of the photoelectric composite cable

|  |   |
|--|---|
| <b>Tension (short-term/long-term)</b>          | 150 N / 80 N  |
| <b>Crush (short-term/long-term)</b>            | (2200 N/100mm) / (1100 N/100mm)   |
| <b>Minimum bending radius (static/dynamic)</b> | 18 mm / 36 mm   |
| <b>Cable bending</b>                           | After 8 times of ±90° bending, the cable does not crack under a 500 g load, and has no open or short circuit in composite withstand voltage and resistance tests. |

## Fiber specifications

|                            |  |
|----------------------------|--|
| <b>Fiber mode</b>          | Single mode                                |
| <b>Maximum attenuation</b> | 1310 nm: 0.35 dB/km<br>1550 nm: 0.21 dB/km |
| <b>Color</b>               | Transparent                                |

## Standards


|                               |  |
|-------------------------------|--|
| <b>Optical standard</b>       | <ul style="list-style-type: none"> <li>IEC 60794, ITU G.657</li> </ul>       |
| <b>Electrical standard</b>    | <ul style="list-style-type: none"> <li>GB/T 5023.2, IEC 61156-1-4</li> </ul> |
| <b>Flame retardant rating</b> | <ul style="list-style-type: none"> <li>IEC 60332-1</li> </ul>                |
| <b>RoHS 2.0</b>               | Compliant  |

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