

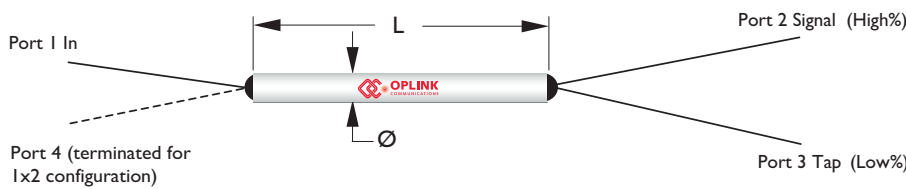
# ULTRA-LOW PDL FUSED TAP COUPLER (1310, S, C, L BAND)

## LPTC Series

### Product Description

The Oplink LPTC (1x2 and 2x2) coupler series feature exceptionally low polarization dependent loss on both signal and tap ports as well as excellent uniformity and low excess loss. They are available with various tap ratios, wavelength ranges, fiber types, and connector options. All devices are shown to be able to handle high optical power up to 4W and are tested according to industry standard procedures. Reliability is guaranteed through stringent tests to fully meet Telcordia GR-1221 requirements.

Oplink can provide customized designs to meet specialized feature applications. Also, Oplink offers modular assemblies that integrate other components to form a full function module or subsystem.



### Performance Specification

| LPTC Series                                | 1310nm   | S band    | C band                 | L band    | Unit |
|--|--|-----------|------------------------|-----------|------|
| Wavelength Range                           | 1270~1350                                      | 1420~1500 | 1530~1565              | 1570~1605 | nm   |
| Fiber Type                                 | Corning SMF-28 or equivalent                   |           |                        |           |      |
| Insertion Loss <sup>[1]</sup>              | See Insertion Loss Table                       |           |                        |           |      |
| Return Loss                                | ≥ 55   |           |                        |           |      |
| Directivity                                | ≥ 55   |           |                        |           |      |
| Temperature Dependent Loss <sup>[2]</sup>  | Signal Path: 0.02~0.10,<br>Tap Path: 0.10~0.20 |           |                        |           |      |
| Optical Power Handling                     | ≤ 4  |           |                        |           |      |
| Operating Temperature Range <sup>[3]</sup> | -40 to +75                                     |           |                        |           |      |
| Storage Temperature Range                  | -40 to +85                                     |           |                        |           |      |
| Package Dimension <sup>[4]</sup>           | P1: 250µm SMF-28 bare fiber                    |           | (ø)3.0 x (L)47         |           |      |
|  | P2: 900µm loose tube                           |           | (ø)3.0 x (L)60         |           |      |
|  | P3: 3mm cable                                  |           | (L)96 x (W)12 x (H)6.4 |           |      |
| Qualification                              | Telcordia GR-1221                              |           |                        |           |      |

### Features

- ◆ Wavelength independent
- ◆ Low insertion loss and PDL
- ◆ High power handling
- ◆ Guaranteed reliability

### Applications

- ◆ Signal monitoring in EDFA
- ◆ CATV
- ◆ Local Area Networks
- ◆ Testing instruments

<sup>[1]</sup> Values are referenced without connector loss.

<sup>[2]</sup> Temperature Dependent Loss (TDL) is defined as Insertion Loss (IL) variation within -5 to 75 °C operating temperature. For example, TDL are 0.2dB and 0.02dB respectively for the two ports of 1/99% tap coupler. Smaller coupling ratio tends to have higher TDL. A 5% tap coupler has smaller TDL than 1% tap coupler on tap port and higher TDL on signal port.

<sup>[3]</sup> Operating temperature range at -5 to 75°C in P2, P3 package and all package with connectors.

<sup>[4]</sup> The mechanical tolerance should be +/-0.2 mm on all package dimensions unless otherwise custom specified.

Insertion Loss Tables

Insertion Loss (IL) I : C or L band coupler

| Coupling Ratio | P Grade              |           |                       |        | A Grade              |           |                       |        |
|----------------|----------------------|-----------|-----------------------|--------|----------------------|-----------|-----------------------|--------|
|                | IL <sup>1</sup> (dB) |           | PDL <sup>2</sup> (dB) |        | IL <sup>1</sup> (dB) |           | PDL <sup>2</sup> (dB) |        |
|                | Signal               | Tap       | Signal                | Tap    | Signal               | Tap       | Signal                | Tap    |
| 99/1           | ≤ 0.18               | 19.0-21.0 | ≤ 0.03                | ≤ 0.03 | ≤ 0.20               | 17.7-21.5 | ≤ 0.05                | ≤ 0.05 |
| 98/2           | ≤ 0.25               | 16.4-18.4 | ≤ 0.03                | ≤ 0.03 | ≤ 0.30               | 16.0-19.4 | ≤ 0.05                | ≤ 0.05 |
| 97/3           | ≤ 0.30               | 14.6-16.2 | ≤ 0.03                | ≤ 0.03 | ≤ 0.35               | 14.0-16.8 | ≤ 0.05                | ≤ 0.05 |
| 95/5           | ≤ 0.35               | 12.4-13.8 | ≤ 0.03                | ≤ 0.03 | ≤ 0.40               | 12.0-14.4 | ≤ 0.05                | ≤ 0.05 |
| 90/10          | ≤ 0.60               | 9.60-10.8 | ≤ 0.03                | ≤ 0.03 | ≤ 0.65               | 9.20-11.2 | ≤ 0.05                | ≤ 0.05 |
| 85/15          | ≤ 0.85               | 7.80-8.80 | ≤ 0.03                | ≤ 0.03 | ≤ 0.90               | 7.5-9.0   | ≤ 0.05                | ≤ 0.05 |
| 80/20          | ≤ 1.15               | 6.60-7.60 | ≤ 0.03                | ≤ 0.03 | ≤ 1.15               | 6.4-8.0   | ≤ 0.05                | ≤ 0.05 |
| 75/25          | ≤ 1.35               | 5.75-6.50 | ≤ 0.03                | ≤ 0.03 | ≤ 1.44               | 5.6-6.7   | ≤ 0.05                | ≤ 0.05 |
| 70/30          | ≤ 1.75               | 5.00-5.50 | ≤ 0.03                | ≤ 0.03 | ≤ 1.82               | 4.9-5.8   | ≤ 0.05                | ≤ 0.05 |
| 65/35          | ≤ 2.10               | 4.40-4.90 | ≤ 0.03                | ≤ 0.03 | ≤ 2.15               | 4.3-5.0   | ≤ 0.05                | ≤ 0.05 |
| 60/40          | ≤ 2.50               | 3.95-4.30 | ≤ 0.03                | ≤ 0.03 | ≤ 2.60               | 3.7-4.6   | ≤ 0.05                | ≤ 0.05 |
| 55/45          | ≤ 2.85               | 3.35-3.80 | ≤ 0.03                | ≤ 0.03 | ≤ 2.90               | 3.1-4.0   | ≤ 0.05                | ≤ 0.05 |
| 50/50          | 2.80-3.30            |           | ≤ 0.03                |        | 2.70-3.30            |           | ≤ 0.05                |        |

1. Insertion loss over operating wavelength range at ~23°C (excluding PDL and TDL).
2. Insertion loss change over the all input polarization states.

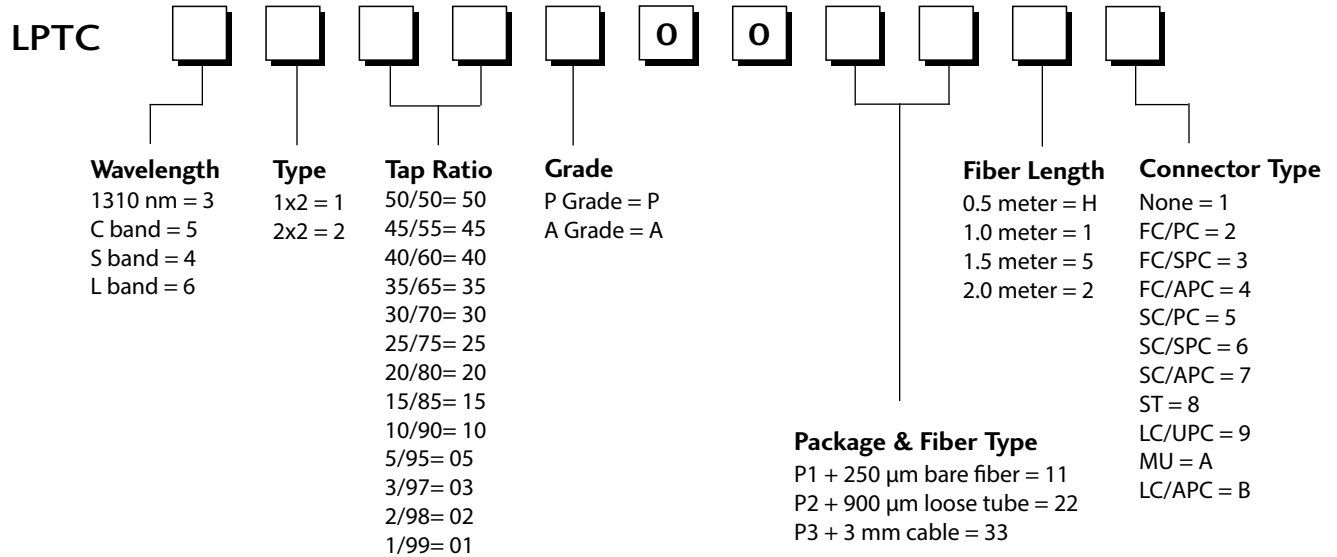
Insertion Loss (IL) II : 1310nm, S band coupler

| Coupling Ratio | P Grade              |           |                       |        | A Grade              |           |                       |        |
|----------------|----------------------|-----------|-----------------------|--------|----------------------|-----------|-----------------------|--------|
|                | IL <sup>1</sup> (dB) |           | PDL <sup>2</sup> (dB) |        | IL <sup>1</sup> (dB) |           | PDL <sup>2</sup> (dB) |        |
|                | Signal               | Tap       | Signal                | Tap    | Signal               | Tap       | Signal                | Tap    |
| 99/1           | ≤ 0.18               | 18.2-21.0 | ≤ 0.03                | ≤ 0.03 | ≤ 0.23               | 17.4-21.5 | ≤ 0.05                | ≤ 0.05 |
| 98/2           | ≤ 0.25               | 16.0-18.6 | ≤ 0.03                | ≤ 0.03 | ≤ 0.30               | 15.2-19.8 | ≤ 0.05                | ≤ 0.05 |
| 97/3           | ≤ 0.30               | 14.4-16.4 | ≤ 0.03                | ≤ 0.03 | ≤ 0.34               | 13.7-17.1 | ≤ 0.05                | ≤ 0.05 |
| 95/5           | ≤ 0.35               | 12.2-14.0 | ≤ 0.03                | ≤ 0.03 | ≤ 0.40               | 11.8-14.7 | ≤ 0.05                | ≤ 0.05 |
| 90/10          | ≤ 0.60               | 9.40-11.0 | ≤ 0.03                | ≤ 0.03 | ≤ 0.65               | 9.00-11.3 | ≤ 0.05                | ≤ 0.05 |
| 85/15          | ≤ 0.90               | 7.70-8.85 | ≤ 0.03                | ≤ 0.03 | ≤ 0.85               | 7.4-9.1   | ≤ 0.05                | ≤ 0.05 |
| 80/20          | ≤ 1.15               | 6.30-7.80 | ≤ 0.03                | ≤ 0.03 | ≤ 1.15               | 6.0-8.1   | ≤ 0.05                | ≤ 0.05 |
| 75/25          | ≤ 1.50               | 5.45-6.70 | ≤ 0.03                | ≤ 0.03 | ≤ 1.44               | 5.5-6.8   | ≤ 0.05                | ≤ 0.05 |
| 70/30          | ≤ 1.75               | 4.60-5.75 | ≤ 0.03                | ≤ 0.03 | ≤ 1.82               | 4.7-5.9   | ≤ 0.05                | ≤ 0.05 |
| 65/35          | ≤ 2.05               | 4.10-5.05 | ≤ 0.03                | ≤ 0.03 | ≤ 2.02               | 4.2-5.0   | ≤ 0.05                | ≤ 0.05 |
| 60/40          | ≤ 2.50               | 3.85-4.40 | ≤ 0.03                | ≤ 0.03 | ≤ 2.60               | 3.7-4.6   | ≤ 0.05                | ≤ 0.05 |
| 55/45          | ≤ 2.85               | 3.15-3.80 | ≤ 0.03                | ≤ 0.03 | ≤ 2.81               | 3.1-4.0   | ≤ 0.05                | ≤ 0.05 |
| 50/50          | 2.70-3.40            |           | ≤ 0.03                |        | 2.60-3.50            |           | ≤ 0.05                |        |

1. Insertion loss over operating wavelength range at ~23°C (excluding PDL and TDL). For S-band product, add 0.1dB due to water absorption peak of fiber.
2. Insertion loss change over the all input polarization states.

## Ordering Information

Oplink can provide a remarkable range of customized optical solutions. For detail, please contact Oplink's OEM design team or account manager for your requirements and ordering information (510) 933-7200.



\*The tolerance of fiber length is +/-0.1 m (for connector option only, for without connector, just keep the length as minimum). 1 meter is standard. The lead-time for special fiber length will be longer.